

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. R5-2006-0121

WASTE DISCHARGE REQUIREMENTS

FOR
THE RUMSEY BAND OF WINTUN INDIANS
CACHE CREEK GOLF CLUB WATER RECLAMATION PROJECT
YOLO COUNTY

The California Regional Water Quality Control Board, Central Valley Region, (hereafter Regional Water Board) finds that:

1. On 31 May 2005, the Rumsey Band of Wintun Indians submitted a Report of Waste Discharge (RWD) for a discharge of reclaimed water to irrigate the planned Cache Creek Golf Club golf course in western Yolo County. Additional information required to complete the RWD was submitted in September 2005, November 2005, January 2006, and March 2006. Various addenda and revisions to the RWD were also submitted in June and July 2006.
2. The Rumsey Band of Wintun Indians (hereafter, "Discharger") owns and operates a sanitary sewer system and wastewater treatment facility (WWTF) that serves the Cache Creek Casino Resort and Hotel, a fire station, and a small grocery store. The WWTF and its service area are on land held in trust for the Discharger by the United States Bureau of Indian Affairs, as shown on Attachment A, which is attached hereto and made part of this Order by reference. As such, the WWTF and discharges of waste to land held in trust for the Discharger ("trust land") are regulated by the United States Environmental Protection Agency (USEPA) and are not subject to regulation by the Regional Water Board. However, the Regional Water Board has the authority to enforce applicable laws, regulations, and policies related to degradation or pollution of surface water or groundwater insofar as such degradation or pollution is detectable outside the confines of trust land.
3. The Discharger is constructing a golf course, clubhouse, and ancillary facilities known as the Cache Creek Golf Club. Some of the golf course is on trust land, but the clubhouse, ancillary facilities, and portions of the golf course are on land owned in fee simple by the Discharger ("fee land"). This Order regulates only discharges of waste to the fee land portion of the golf club facility and potential degradation or pollution of surface water or groundwater that may occur outside of trust land as a result of the discharges to trust land.
4. The Discharger owns and operates the WWTF, the Cache Creek Casino Resort and Hotel (the "casino complex"), and the Cache Creek Golf Club, and is responsible for compliance with these Waste Discharge Requirements.
5. The Cache Creek Casino Resort and Hotel, the Cache Creek Golf Club, and the WWTF are at 14455 State Highway 16 near the town of Brooks, in an unsectioned area of T10N, R2W and R3W, MDB&M (Assessor's Parcel No. 048-040-10). The fee land portions of the golf club facility comprise Assessor's Parcel Nos. 048-020-18, 048-040-12, 048-040-14, and 048-040-15. The locations of the WWTF and resort are shown on Attachment B, which is attached hereto and made

part of this Order by reference. The golf course plan is shown on Attachment C, which is attached hereto and made part of this Order by reference.

Existing WWTF

6. Sewage from the casino complex and ancillary facilities flows by gravity sewer to a wet well lift station on trust land. Two 350-gallon per minute (gpm) pumps are used to pump the wastewater through a force main to the WWTF headworks.
7. Between January 2005 and January 2006, average daily influent flows ranged from 179,000 to 234,000 gallons per day (gpd), with a mean of 200,000 gpd. The higher flows were during the months of April through August, and the RWD states that weekend flows tend to be higher than weekday flows. The WWTF design flow is 225,000 gpd as an average daily flow; 350,000 gpd as a peak weekend daily flow; and 475,000 gpd as a peak holiday daily flow.
8. The RWD characterized influent wastewater quality as follows.

<u>Constituent</u>	<u>Average Influent Concentration (mg/L)</u>
BOD	430
Total Suspended Solids	250
<u>Total Kjeldahl Nitrogen</u>	70

9. Influent wastewater is screened prior to discharge to a microfiltration membrane bioreactor (MBR) system, which provides tertiary treatment. Treatment starts in either of two 39,000-gallon anoxic basins, which also receive recirculated mixed liquor from the aeration basin in the MBR and waste activated sludge. These streams are mixed without aeration to promote denitrification and alkalinity recovery. Effluent from the anoxic basin is then conveyed to the aeration/membrane basin system.
10. Four microfiltration cassettes are installed in each of two 104,000-gallon aeration basins. Permeate pumps draw wastewater through microfiltration fibers contained in the cassettes, and scour air is supplied beneath the cassettes to remove solids from between the microfiltration fibers. Additional air is supplied through fine bubble diffusers in the aeration basin to support aerobic biodegradation. Two permeate pumps are typically in operation, and there is one standby pump. Likewise, two blowers are typically run for the scour and process air systems, and there is one backup blower.
11. The microfiltration membranes are automatically backflushed periodically, and sodium hypochlorite is injected into the back wash flow to remove biological growth from the filters.
12. Tertiary treated wastewater (permeate) from the MBR system is currently disinfected by ultraviolet (UV) light and is then stored or transferred to pump stations for recycling or land disposal. A 64,000-gallon steel Recycled Water Storage Tank provides reclaimed water for toilet flushing at the casino.

13. A 57-acre-foot (18.6 million gallons) storage reservoir (Recycled Water Reservoir No. 1) has historically been used to store treated wastewater prior to discharge to a 90,000-gpd leachfield system and spray fields on trust land. One spray field is west of the WWTF, and two spray fields totaling 49 acres occupy part of the golf course site. These features are depicted on Attachment D, which is attached hereto and made part of the Order by reference. Recycled Water Reservoir No. 1 (which is double lined with a leak detection system) and the Recycled Water Storage Tank are also on trust land. The two lower spray fields will be regraded to form part of the golf course. The RWD did not specify whether use of the upper spray field would continue.
14. Turbidity is monitored continuously with on-line instrumentation and periodically confirmed with on-site laboratory testing. The turbidity meter is on the discharge side of the permeate pumps, and the permeate pumps will automatically shut down if effluent turbidity exceeds 0.5 NTU. In such circumstances, the treated wastewater would be diverted to one of the existing emergency storage structures described below.
15. Based on effluent monitoring data for January 2005 through January 2006, and supplemental monitoring completed in early 2006, the RWD characterized the WWTF effluent as follows.

Constituent	Effluent Concentration		Applicable Water Quality Limit ¹
	Monthly Average	Daily Maximum	
BOD (mg/L)	<1 to <5	1.6	None
Total Suspended Solids (mg/L)	<1	1.6	None
pH	7.6 to 7.8	--	6.5 to 8.4
Total Dissolved Solids (mg/L) ²	1,230 ³	1,400	450
Chloride (mg/L) ²	440 ³	510	106
Nitrate as NO ₃ (mg/L)	2.8 to 9.2	--	45
Ammonia (mg/L)	0.01 to 0.36	--	1.5
Turbidity (NTU)	0.08 to 0.12	0.98	None
Total Coliform Organisms	--	<2 ^{4, 5}	2.2

¹ Water quality limit to apply narrative water quality objectives specified in the Basin Plan for protection of the beneficial uses of groundwater.

² Based on analysis of 29 samples obtained between 23 January and 5 April 2006.

³ Arithmetic mean of all results.

⁴ Based on samples obtained from the recycled water storage tank prior to supply to the casino.

⁵ Value listed is a typical result. The October 2005 daily maximum was 240, and the December 2005 daily maximum was <1,600. The RWD states that the latter value is due to laboratory error.

-- Data not provided.

NA Not analyzed.

16. In May 2006, the Discharger analyzed a single sample of treated effluent for additional analytes, as summarized below.

Constituent	Effluent Concentration	Applicable Water Quality Limit ¹
Total Hardness (mg/L)	348	None
Total Alkalinity (mg/L)	310	None
Electrical Conductivity (mg/L)	2,200	700
Total Dissolved Solids (mg/L)	1,300	450
pH	7.9	6.5 to 8.4
Calcium (mg/L)	90	None
Iron (ug/L)	<100	300
Magnesium (mg/L)	30	None
Manganese (ug/L)	<20	50
Potassium (mg/L)	19	None
Sodium (mg/L)	320	69
Chloride (mg/L)	430	106
Fluoride (ug/L)	<100	1,000
Nitrate nitrogen (mg/L)	1.6	10
Sulfate (mg/L)	170	250

¹ Water quality limit to apply narrative water quality objectives specified in the Basin Plan for protection of the beneficial uses of groundwater.

These data indicate that the treated effluent greatly exceeds applicable water quality limits for electrical conductivity, total dissolved solids, sodium, and chloride. According to the Discharger's consultant, the high salinity is likely due to use of an ion exchange water softening system for the casino complex water supply. The Discharger implemented some source reduction measures in early 2006, and the results above represent data obtained after full implementation of those measures.

17. Biosolids undergo aerobic digestion and dewatering, and supernatant is returned to the MBR system. Screenings and dewatered biosolids are disposed of off-site.
18. The WWTF is equipped with a supervisory control and data acquisition (SCADA) system, backup power supply, automated control valves, and an alarm system. If turbidity, which is monitored continuously, exceeds standards for tertiary effluent, the WWTF will trigger the alarm, automatically shut down, and cut off the supply of effluent to the recycling system. Once the system is operational again, any inadequately treated effluent would be rerouted to the plant headworks.

19. The WWTF itself can hold up to 234,000 gallons of wastewater and provides the following backup storage features to prevent system bypass and discharge of partially treated wastewater:
 - a. A 234,000-gallon emergency storage basin downstream of the influent screen;
 - b. An 83,000-gallon overflow basin at the inlet to the MBR system, which can overflow to the emergency storage basin.
20. The chief wastewater treatment operator holds at least a Grade 3 license. Supervising operators and shift supervisors hold at least a Grade 2 license. Actual operators have Grade 1 licenses or Operator-in-Training certificates. All WWTF system monitoring reports are submitted to the US EPA.

Proposed Changes to the WWTF

21. The Discharger proposes to modify the disinfection system so that disinfection will be achieved solely by the use of sodium hypochlorite. A flow-paced chlorine dosing system will be installed upstream of a new 35,000-gallon chlorine contact basin.
22. The chlorine flow rate will be controlled by a chlorine residual analyzer (CRA) at the basin inlet. The inlet CRA will be set to maintain a residual concentration of 7.0 mg/L. If the inlet residual chlorine concentration drops to 1.0 mg/L below the set point, an alarm will be triggered. If the chlorine residual remains low for more than five minutes, the permeate pumps will automatically shut off.
23. There will also be a chlorine residual analyzer at the outlet end of the chlorine contact basin. The outlet CRA will trigger an alarm if the exiting chlorine residual concentration is below 4.5 mg/L. This level was selected based on the design hydraulic residence time of 106 minutes and a peak design flow of 0.475 mgd.
24. The existing standby generators will be used to ensure a continuous power supply to the disinfection system. If the standby power were to fail, flows to the disinfection system would be automatically diverted to the emergency storage basin.
25. Other system reliability features include alarms to indicate failure of chemical feed equipment; a backup hypochlorite metering pump; and storage for a 20- to 30-day supply of sodium hypochlorite.
26. The system is designed to provide the required CT (the product of contact time and residual chlorine concentration) of 450 mg•min/mL and 90-minute modal contact time within the chlorine contact basin. The California Department of Health Services (DHS) requires that a tracer study be completed to demonstrate that adequate CT and modal contact time will be maintained at all times.

Proposed Reclaimed Water Discharge

27. The Discharger proposes to reclaim treated effluent to irrigate the golf course at the Cache Creek Golf Club, which is approximately 3,000 feet east of the casino complex. The southern portion of the golf course (approximately 79 acres), and irrigation storage pond (South Lake) are on trust land. The

northern portion of the golf course, the driving range, and a large decorative pond (North Lake) are on approximately 111 acres of fee land. The remainder (119 acres) of fee land will not be used for reclamation (see Attachment C). As stated above, this Order regulates only discharges of waste to the fee land portion of the golf club facility and potential degradation or pollution of surface water or groundwater that may occur outside of trust land as a result of the discharges to trust land.

28. Ancillary facilities include a clubhouse, golf cart barn, comfort station, and turf maintenance facility (on fee land).
29. North Lake is a large man-made pond on the fee land part of the golf course. It is lined with 30-mil polyvinyl chloride capped with concrete to minimize water losses due to percolation. It will be filled only with fresh water pumped from Cache Creek via either of two pump stations (one pre-existing and one new), and will have water recirculation and aeration systems to maintain its aesthetic quality. A 1,600-foot long man-made stream (North Stream) lined with 60-mil high-density polyethylene will meander from a smaller pond (Five Pond) west of the fifth green to the northern edge of the lake, and will be supplied with fresh water recirculated from the North Lake.
30. South Lake is a 16.1-acre pond on the trust land part of the golf course. It is lined with a 30-mil polyvinyl chloride capped with concrete. Its capacity is 154 acre-feet at the normal water surface elevation of 270 feet MSL, and it can overflow only if the water level exceeds 282.7 feet MSL (or 438 acre feet). Consequently, the water level in South Lake will be lowered to approximately 265 feet MSL in the late fall to provide storage for reclaimed water and precipitation runoff during the rainy season. A 700-foot long man-made stream lined with 60-mil high-density polyethylene will meander from a pond at the clubhouse to the southern edge of the lake, and will be supplied with reclaimed water recirculated from the South Lake. South Lake will also have water recirculation and aeration systems.
31. South Lake will function as the irrigation reservoir for the golf course. It will receive reclaimed water from the WWTF and fresh water from Cache Creek as needed to provide supplemental irrigation water for the golf course driving range, and water for the stream feature. Fresh water for irrigation will be supplied from North Lake, which can receive water from the creek by either of two supply pumps that discharge to Five Pond. The water flows from Five Pond through the North Stream to North Lake. Fresh water is pumped directly from North Lake via a low-head pipeline to either a return line to Five Pond or to a distribution box that can divert the flow by gravity either to South Lake or to the irrigation pump station wet well at the north end of South Lake.
32. The water level in North Lake will be maintained at an elevation of 274 feet MSL, four feet higher than the normal high water level in South Lake. An automated pump station near the comfort station will be used to divert fresh water from North Lake to the irrigation pump station wet well or to South Lake as needed.
33. To prevent backflow from South Lake to North Lake or to Cache Creek, the pipeline from the pumping facility at the comfort station enters the distribution box at an invert elevation of 287.4 feet

MSL, which is two feet above the 282.7 feet MSL overflow elevation for the South Lake watershed area. It is also 11.2 feet above the two pipes that exit the distribution box and extend to South Lake.

34. South Lake will not be fenced, but swimming, boating, and body contact will not be allowed. Signs notifying the public of these restrictions will be posted at South Lake.
35. Reclaimed water will be applied to the golf course and associated landscaped areas by spray irrigation using a computerized system that receives evapotranspiration data from an onsite weather station. Precipitation information from the weather station will also be used by the computer irrigation control system to prevent irrigation during periods of precipitation or high wind.
36. A central computer system will control several satellite irrigation controllers (one or two per golf course hole) to operate approximately 2,025 adjustable-angle sprinkler heads. The central computer system will also monitor and control flow rates in each irrigation pipe segment to optimize irrigation efficiency and minimize runoff. The sprinkler heads have adjustable spray angles to allow control of drift.
37. Typically, irrigation will be at night when the golf course is closed; any daytime irrigation will be done manually or by sprinkler (with extra precautions to prevent human contact). There will no eating areas, food preparation areas, or drinking fountains within the irrigated areas, and a 50-foot setback will be maintained between the irrigated area and the Cache Creek channel. Anticipated irrigation schedules are summarized below.

<u>Time of Year</u>	<u>Irrigation Frequency</u>	<u>Irrigation Duration</u>
Spring	Every other day	6 minutes
Summer	Every day	15 to 20 minutes
Fall	Every other day	8 minutes
<u>Winter</u>	Once per week	5 minutes

38. The RWD estimates that reclaimed water will supply approximately 44 percent of the total golf course irrigation demand. Monthly irrigation and effluent disposal demand for a typical year is estimated as follows.

<u>Month</u>	<u>Estimated Monthly Volume (MG)</u>			
	<u>Total Irrigation Demand</u>	<u>Total Effluent Generated</u>	<u>Supplemental Irrigation Demand</u>	<u>Leachfield Disposal</u>
November	0	7.50	0	1.5
December	0	7.75	0	1.55
January	0	7.75	0	1.55
February	0	7.00	0	1.4

Month	Estimated Monthly Volume (MG)			
	Total Irrigation Demand	Total Effluent Generated	Supplemental Irrigation Demand	Leachfield Disposal
March	0	7.75	0	1.55
April	15.2	7.5	0	0
May	26.8	7.75	0	0
June	37.1	7.5	29.4	0
July	46.8	7.75	43.0	0
August	46.7	7.75	42.5	0
September	36.8	7.5	31.9	0
October	24.7	7.75	18.3	0
Total	234.2	91.3 ¹	165.0	7.6

¹ Excludes net evaporative losses during treatment and storage.

39. Irrigation runoff, if any, will be collected by a drainage system and conveyed to a runoff detention basin near South Lake and pumped back to South Lake for reuse. There is also a small runoff retention basin near Hole 14 in the northeast corner of the golf course, which is designed to allow runoff to infiltrate into the underlying soil.
40. On days when precipitation or other weather conditions preclude irrigation, treated effluent will either be stored in either of the two storage reservoirs or discharged to the leachfield on trust land, which has a design capacity of 90,000 gpd. Additionally, some of the disinfected effluent is used for toilet flushing at the casino.
41. Storm water runoff from most of the golf course is collected by the drainage piping system and conveyed to the runoff detention basin on trust land. The fate of storm water runoff from specific areas is summarized below.

Area	Conveyance	Detention Feature
North Lake area and Hillside west of Holes 11 and 12	Pipeline	North Lake (overflows to runoff detention basin)
Fairways around South Lake	Sheet flow to drain pipe inlets	South Lake
East and south of South Lake	Sheet flow to drain pipe inlets	Runoff detention basin
West of holes 10 and 18	Pipeline	Runoff detention basin

Area	Conveyance	Detention Feature
Driving range, turf maintenance facility, and west of club house	Sheet flow	Shallow swales (infiltration)
Hole 14 fairway	Sheet flow	Small infiltration basin

The runoff detention basin near South Lake has a culvert at the property line at the southeast corner of the golf course. When the water level reaches the culvert invert, excess storm water runoff will flow through the culvert to an off-site drainage ditch.

42. Based on an irrigated area of 130 acres and 44 percent of the irrigation demand being supplied by reclaimed water, the estimated total nitrogen loading from wastewater would be approximately 13 pounds per acre per year.
43. The RWD included a water balance to demonstrate adequate wastewater storage and disposal capacity. The water balance model indicates that the WWTF's Recycled Water Reservoir No. 1 will normally be empty by late fall each year, and that the WWTF and South Lake will have sufficient capacity to contain the design wastewater flow and seasonal precipitation during a normal rainfall year. The model assumes the following:
- The average daily influent flow will be 250,000 gpd year round;
 - An average of 50,000 gpd of effluent will be discharged to the leachfield system from 1 November through 30 March each year;
 - The volume in Recycled Water Reservoir No. 1 will be minimal by 30 October each year; and
 - The water depth in South Lake will be reduced to 265 feet MSL (approximately seven feet deep) by 30 October each year.

Site-Specific Conditions

44. The Cache Creek Golf Club facility is adjacent to the western bank of Cache Creek. Most of the site is on an overbank terrace at an approximate elevation of 255 to 275 feet above mean sea level (MSL) that slopes gently away from the creek. Slopes increase along the western side of the golf course, creating an escarpment that rises to approximately 320 feet MSL (see attachment A). The casino complex is immediately southwest of the golf club on a northwest to southeast trending ridge that separates the southern end of the Capay Valley from Cache Creek at an elevation of approximately 400 feet MSL.
45. Surface soils across the golf course site are primarily Tehama loam and Yolo silt loam. The Tehama loam (primarily on the north portion of the golf course) is characterized by low permeability, slight erosion potential, with 8 to 10 inches of water holding capacity. The Yolo silt loam (primarily in the south portion of the golf course) exhibits moderate permeability, slight erosion potential, and 9 to 11 inches of water holding capacity.

46. Annual precipitation in the vicinity averages approximately 17.9 inches and the 100-year total annual precipitation is 42.3 inches. The estimated evapotranspiration rate for turf grass is approximately 51.5 inches per year.
47. Land uses in the vicinity of the casino complex and country club are primarily agricultural. The golf course site was historically a private ranch and was used for cattle grazing, hog farming, and growing alfalfa and hay.
48. Based on FEMA Flood Insurance rate maps, the majority of the golf course is within the 100-year floodplain. The 19 June 2006 RWD Addendum included a revised Hydrologic Analysis Report using the HEC-RAS model developed by the US Army Corps of Engineers. The calibrated model for the original golf course grading plan indicates the following:
- a. Hole 14 (mostly on fee land) will be flooded during a five-year event (which corresponds to a creek discharge rate of approximately 25,500 cubic feet per second, or cfs).
 - b. Portions of the golf course along the western hill line (both fee and trust land) will become a temporary flood channel during a 50-year event (which corresponds to a creek discharge rate of approximately 52,190 cfs).
 - c. The 100-year floodplain elevation (approximately 61,725 cfs) for most of the site ranges from approximately 281.6 feet MSL at the north end of the golf course to 279.2 feet MSL at the south end. The predicted floodplain elevation at South Lake is 280.7 feet MSL. Peak flows would tend to quickly recede.

The grading design around South Lake includes an earthen barrier at least 30 feet wide with a minimum crest elevation of 282.7 feet MSL to prevent inundation of South Lake during the 100-year flood event. If South Lake is inundated by a flood event that exceeds the 100-year event, the Discharger will use the existing leachfields and/or other storage/disposal areas on trust land to prevent discharges of wastewater to surface water until South Lake can be brought back into service.

49. The Discharger performed limited water quality monitoring in Cache Creek upstream of the golf course in early 2006 to support the RWD. Analytical data from these monitoring events are summarized below.

Constituent	Analytical Result	
	May 2006	June 2006
Total Hardness (mg/L)	234	165
Total Alkalinity (mg/L)	220	160
Electrical Conductivity (mg/L)	550	380
Total Dissolved Solids (mg/L)	320	210
pH	8.3	8.3
Calcium (mg/L)	34	27

Constituent	Analytical Result	
	May 2006	June 2006
Iron (ug/L)	360	950
Magnesium (mg/L)	36	24
Manganese (ug/L)	<20	37
Potassium (mg/L)	1.7	1.9
Sodium (mg/L)	30	20
Chloride (mg/L)	32	19
Fluoride (ug/L)	<100	11
Nitrate nitrogen (mg/L)	0.35	<0.20
Sulfate (mg/L)	46	21

With the exception of iron, these data indicate that Cache Creek is a high quality water source during and shortly after the rainy season. The data provided were not sufficient to assess seasonal water quality variations.

Groundwater Considerations

50. According to the RWD, there are several domestic, irrigation, and stock watering wells within one mile of the golf course, as well as the Discharger's municipal supply well. The RWD states that most are perforated somewhere between 20 and 200 feet below ground surface. Based on local topography, the golf course location, and its proximity to Cache Creek, most of these wells appear to be upgradient or cross gradient of the golf course. One well (the Guzman well) appears to be downgradient of the golf course, and is apparently used for domestic supply. The Guzman well is reportedly perforated at intervals between 17 and 117 feet below ground surface, and is more than 50 feet away from the golf course.
51. Three groundwater monitoring wells (MW-3, MW-4, and MW-5) were installed to monitor groundwater beneath the former spray fields on the trust land portion of the golf course, as shown on Attachment D. Based on six groundwater monitoring events between June 2003 and June 2005, groundwater elevations at the golf course ranged from 256 to 258 feet above MSL (or approximately 21 feet below the surrounding grade) with little seasonal variability. The groundwater flow direction at the golf course site was generally eastward towards Cache Creek.
52. Groundwater quality data for the golf course monitoring wells is summarized below. The terms cross gradient and downgradient relate to well locations with respect to the former wastewater spray fields shown on Attachment D.

Constituent/Parameter	Concentration Range			Applicable Water Quality Limit ²
	Cross gradient Wells		Downgradient Well	
	MW-3	MW-5	MW-4	
pH	7.3 to 7.5	7.6 to 8.1	7.4 to 8.1	6.5 to 8.4
Total alkalinity, mg/L	300 to 400	340 to 380	310 to 410	None
Total hardness, mg/L	750 to 890	290 to 400	270 to 420	None
Electrical conductivity, umhos/cm	1,700 to 2,400	760 to 880	710 to 920	700
Total dissolved solids, mg/L	1,400 to 1,600	550 to 640	450 to 750	450
Calcium, mg/L	170 to 200	47 to 85	48 to 71	None
Chloride, mg/L	160 to 240	9 to 52	44 to 140	106
Fluoride, mg/L	0.31 to 0.49	0.61 to 0.91	0.24 to 0.39	1.0
Sodium, mg/L	130 to 230	30 to 140	76 to 130	69
Potassium, mg/L	1.6 to 2.4	<1.0 to 7.5	1.3 to 2.5	None
Nitrate as NO ₃ , mg/L	5.3 to 18	9 to 21	9 to 33	45
Sulfate, mg/L	470 to 680	13 to 95	49 to 89	250
Total trihalomethanes, ug/L	ND to 114.5 ¹	ND to 236 ¹	ND to 265 ¹	80
Coliform organisms, MPN/100 mL	<2 to 4	<2 to 4	<2	2.2

¹ All detections were in January 2004.

² Water quality limit to apply narrative water quality objectives specified in the Basin Plan for protection of the beneficial uses of groundwater.

These data indicate that upgradient groundwater quality beneath the trust portion of the golf course exceeds applicable water quality limits for electrical conductivity, total dissolved solids, chloride, sodium, and sulfate. The difference between results for MW-3 and the other two wells appears to be due primarily to the high sulfate, bicarbonate alkalinity, hardness, sodium, and chloride. The RWD did not provide any information as to whether these differences are naturally occurring or the result of past land use.

With the exception of nitrate, the available data indicate that the former spray fields did not degrade groundwater quality. Although downgradient nitrate concentrations are elevated with respect to background, it does not appear that pollution has occurred. Part of this finding may be due to the influence of fresh water infiltrating the shallow zone from Cache Creek.

Trihalomethanes were detected in all three wells during one sampling event only (January 2004). However, the wells had been improperly disinfected just prior to sampling. Trihalomethanes were not detected in subsequent monitoring events.

53. Six additional monitoring wells (MW-7, MW-8, MW-9, MW-11, MW-12, and MW-13) were constructed on trust land near the casino complex to monitor groundwater quality beneath the former spray field and three existing leach fields (Attachment D). Limited groundwater elevation data provided for these wells indicates that shallow groundwater at this part of the site is significantly higher than that at the golf course site, and that the flow direction is also different. Groundwater elevations ranged from 289 feet MSL at MW-8 to 428 feet MSL at MW-11 (approximately 100 feet and 94 feet below ground surface, respectively), and the flow direction appears to be towards the northwest (away from the creek). Based on the number of domestic and agricultural supply wells near the casino area, shallow groundwater in this area appears to be influenced by local drawdown in and around the Capay Valley west and northwest of the casino complex.
54. Water quality data was provided only for wells MW-7, MW-8, and MW-9. These data are limited to three events, and groundwater elevations corresponding to the sampling events were not included in the RWD. MW-9 appears to be primarily upgradient of the existing leachfield, but may also be downgradient of the WWTF. MW-8 appears to be downgradient of the leach fields, and MW-7 appears to be primarily cross gradient of the leach fields. The following table summarizes monitoring data provided in the RWD for these three wells.

Constituent/Parameter	Concentration Range (mg/L except as noted)			Applicable Water Quality Limit ¹
	Upgradient	Downgradient	Cross gradient	
	MW-9	MW-8	MW-7	
pH	7.4 to 7.9	7.5 to 7.6	7.6 to 7.7	6.5 to 8.4
Total alkalinity, mg/L	350 to 360	210 to 240	180 to 190	None
Total hardness, mg/L	370 to 380	240 to 360	250 to 260	None
Electrical conductivity, umhos/cm	700 to 790	450 to 720	500 to 520	700
Total dissolved solids, mg/L	470 to 500	360 to 450	320 to 370	450
Calcium, mg/L	59 to 61	63 to 97	66 to 68	None
Chloride, mg/L	65 to 66	31 to 76	44 to 50	106
Fluoride, mg/L	0.31 to 0.37	0.26 to 0.31	0.31 to 0.32	1.0
Sodium, mg/L	48 to 49	23 to 33	18	69
Potassium, mg/L	2	3.5 to 4.5	<1	None
Nitrate as NO ₃ , mg/L	18 to 29	36 to 43	33 to 36	45
Sulfate, mg/L	5.8 to 6.1	10 to 20	5.9 to 6.2	250
Coliform organisms, MPN/100	<2	<2	<2	2.2

¹ Water quality limit to apply narrative water quality objectives specified in the Basin Plan for protection of the beneficial uses of groundwater.

These data indicate that shallow groundwater beneath the trust parcel that includes the casino complex is similar to that found in MW-4 and MW-5. Concentrations of total dissolved solids, other

salinity constituents, and electrical conductivity were typically less than the applicable water quality limits. The data also indicate that the leach fields have caused increases in nitrate concentrations, but these increases do not appear to constitute pollution.

55. Based on the high salinity of the treated effluent (1,300 mg/L TDS) relative to underlying groundwater (approximately 600 mg/L TDS), the proposed discharge poses a threat to groundwater quality. Therefore, it is appropriate to impose interim effluent limits for dissolved solids, chloride, and sodium that will ensure that the current levels of salinity in the effluent do not increase above current concentrations. It is also appropriate to require groundwater monitoring for the golf course and a formal determination of background groundwater quality and the potential for groundwater degradation. Monitoring wells MW-3 and MW-4 were abandoned during construction of the golf course, and will need to be replaced.

Groundwater Degradation

56. State Water Resources Control Board (State Water Board) Resolution No. 68-16 (hereafter Resolution No. 68-16 or the "Antidegradation Policy") requires the Regional Water Board in regulating the discharge of waste to maintain high quality waters of the state (i.e., background water quality) until it is demonstrated that any change in quality will be consistent with maximum benefit to the people of the State, will not unreasonably affect beneficial uses, and will not result in water quality less than that described in the Regional Water Board's policies (e.g., quality that exceeds water quality objectives).
57. The Regional Water Board finds that some degradation of groundwater beneath the golf course is consistent with Resolution No. 68-16 provided that:
- a. The degradation is confined within a specified boundary;
 - b. The Discharger minimizes the degradation by fully implementing, regularly maintaining, and optimally operating best practicable treatment and control (BPTC) measures;
 - c. The degradation is limited to waste constituents typically encountered in municipal wastewater as specified in the groundwater limitations in this Order; and
 - d. The degradation does not result in water quality less than that prescribed in the Basin Plan.
58. Some degradation of groundwater by some of the typical waste constituents released with discharge from a municipal wastewater utility after effective source control, treatment, and control is consistent with maximum benefit to the people of California. The technology, energy, water recycling, and waste management advantages of municipal utility service far exceed any benefits derived from a community otherwise reliant on numerous concentrated individual wastewater systems, and the impact on water quality will be substantially less. Degradation of groundwater by constituents (e.g., toxic chemicals) other than those specified in the groundwater limitations in this Order, and by constituents that can be effectively removed by conventional treatment (e.g., total coliform bacteria) is prohibited. When allowed, the degree of degradation permitted depends upon many factors (i.e., background water quality, the waste constituent, the beneficial uses and most stringent water quality objective, source control measures, waste constituent treatability).

59. Economic prosperity of local communities and associated industry is of maximum benefit to the people of California, and therefore sufficient reason exists to accommodate growth and groundwater degradation around the facility, provided that the terms of the Basin Plan are met.

Treatment and Control Practices

60. The Discharger will provide treatment and control of the discharge that incorporates:
- a. Metal, concrete and/or plastic treatment structures that provide complete containment during wastewater treatment and storage;
 - b. Alarm and automatic flow diversion systems to prevent system bypass or overflow;
 - c. Effluent storage pond liner systems;
 - d. Tertiary treatment;
 - e. Denitrification;
 - f. Disinfection of treated effluent;
 - g. Recycling of wastewater using agronomic application rates;
 - h. Appropriate biosolids storage and disposal practices; and
 - i. Certified operators to assure proper operation and maintenance.
61. Although the WWTF design and effluent recycling program incorporate several BPTC measures, it is possible that the Discharger's current effort may not constitute full BPTC as intended in Resolution No. 68-16. Specifically, concentrations of dissolved solids, chloride, and sodium greatly exceed apparent background groundwater quality and the applicable water quality limits for groundwater. The excess TDS, chloride, and sodium are the result of controllable factors (i.e., the use of an ion exchange water softening system). Therefore, this Order establishes a schedule for tasks to:
- a. Formally determine background groundwater concentrations for selected constituents; and
 - b. Evaluate and implement additional measures to reduce the salinity of the discharge as needed to ensure compliance with Resolution No. 68-16.

Completion of these tasks and implementation of the approved strategies developed from that work will ensure that BPTC and the highest water quality consistent with the maximum benefit to the people of the State will be achieved.

62. This Order establishes interim groundwater limitations for the golf course that will not unreasonably threaten present and anticipated beneficial uses or result in groundwater quality that exceeds water quality objectives set forth in the Basin Plan. Accordingly, the discharge is consistent with the antidegradation provisions of Resolution No. 68-16. Based on the results of the scheduled tasks, the Regional Water Board may reopen this Order to reconsider groundwater limitations and other requirements to comply with Resolution No. 68-16.

Water Recycling

63. State Water Board Resolution No. 77-1, *Policy with Respect to Water Reclamation in California*, encourages recycling projects that replace or supplement the use of fresh water, and *The Water Recycling Law* (CWC sections 13500-13529.4) declares that utilization of recycled water is of primary interest to people of the State in meeting future water needs.
64. A 1996 Memorandum of Understanding between DHS and State Water Board on the use of recycled water establishes basic principles relative to the two agencies and the regional boards. The Memorandum allocates primary areas of responsibility and authority between the agencies and provides for methods and mechanisms necessary to assure ongoing, continuous future coordination of activities relative to use of recycled water.
65. DHS has established statewide water recycling criteria in Title 22, CCR, Section 60301 et. seq. (hereafter Title 22). DHS revised the water recycling criteria contained in Title 22 on 2 December 2000. The Discharger will treat to tertiary standards and disinfect the tertiary effluent per Title 22 requirements because of the potential for human contact with the reclaimed wastewater when it is used to irrigate the golf course.
66. DHS requires that the American Water Works Association (AWWA) *Guidelines for Distribution of Non-Potable Water* and *Guidelines for the On-site Retrofit of Facilities Using Disinfected Tertiary Recycled Water* be implemented in design and construction of recycling equipment. The guidelines require installation of purple pipe, adequate signs, etc. Adequate separation between the recycled water lines and domestic water lines and sewer lines is also required. The Discharger proposes to fully comply with these requirements.
67. Section 60323(a) of Title 22 states that no person shall produce or supply reclaimed water for direct reuse from a proposed water reclamation plant unless an engineering report is submitted for review and approval by DHS and the Regional Water Board. Irrigation of golf courses and other landscaping is considered a beneficial reuse. A Title 22 Engineering Report was originally submitted to DHS in May 2005, and revised on 30 March 2006. DHS provided final comments on the revised Title 22 Report on 1 May 2006, and those comments are addressed in these WDRs. DHS granted conditional approval of the proposed water recycling program, but requires that a tracer study be completed to ensure that reclaimed water consistently meets the Title 22 requirement for modal contact time prior to first use of reclaimed water at the golf course. DHS approved the Discharger's tracer study protocol on 7 August 2006. The Discharger expects to complete construction of the new disinfection system in early October 2006, but it is unlikely that the tracer study will be completed and approved by DHS before this Order is in effect. Therefore, it is appropriate to prohibit any discharge of reclaimed effluent to the golf course unless and until DHS approves the Discharger's tracer study report.

Basin Plan, Beneficial Uses, and Regulatory Considerations

68. The *Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, Fourth Edition*, (hereafter Basin Plan) designates beneficial uses, establishes water quality objectives, contains implementation plans and policies for protecting waters of the basin, and incorporates by reference plans and policies adopted by the State Water Board. These requirements implement the Basin Plan.
69. Surface water drainage is to Cache Creek. The beneficial uses of Cache Creek are municipal and domestic supply; agricultural irrigation and stock watering supply; process and service industrial supply; contact recreation, other noncontact recreation; warm and cold freshwater habitat; warm and cold water spawning; and wildlife habitat.
70. The beneficial uses of the underlying groundwater are municipal and domestic supply, agricultural supply, industrial service supply, and industrial process supply.
71. The Basin Plan encourages water recycling.
72. The Basin Plan establishes numerical and narrative water quality objectives for surface water and groundwater within the basin. Numerical and narrative water quality objectives are maximum limits directly applicable to the protection of designated beneficial uses of the water unless higher levels are the result of factors that cannot be reasonably controlled or are not subject to the authority of the State and Regional Water Boards. The Basin Plan requires that the Regional Water Board, on a case-by-case basis, follow specified procedures to determine maximum numerical limitations that apply the narrative objectives when it adopts waste discharge requirements.
73. The Basin Plan specifies a numerical water quality objective for ground waters for bacteria that states, in part, the following:
- “The following objectives apply to all ground waters of the Sacramento and San Joaquin River Basins, as the objectives are relevant to the protection of designated beneficial uses.”*
- “Bacteria**
- In ground waters used for domestic or municipal supply (MUN), the most probable number of coliform organisms over any seven-day period shall be less than 2.2/100mL.”*
- Groundwater, as described in the Basin Plan (page I-1.00), includes all subsurface waters that occur in fully saturated zones and fractures within soils and other geologic formations.
74. The Regional Water Board applies the bacteria objective to all groundwater designated as municipal or domestic supply (MUN), not just those waters currently used for MUN. This interpretation is consistent with the California Water Code (CWC) and the Basin Plan. The Regional Water Board has consistently interpreted the objective to apply to groundwater designated for MUN. The Regional Water Board has a long-standing pattern and practice of adopting Wars that reflect this interpretation. The following excerpts from the Basin Plan clearly support the plain meaning of the Basin Plan as well as the Regional Water Board’s established pattern and practice:

- a. The introductory paragraph on Water Quality Objectives for Ground Waters (page III-9.00 of the Basin Plan) states: *“The following objectives apply to all ground waters of the Sacramento and San Joaquin River Basins, as the objectives are relevant to the protection of designated beneficial uses.”*
- b. The Policy for Application of Water Quality Objectives (page IV-16.00) states: *“Water quality objectives apply to all waters within a surface water or ground water resource for which beneficial uses have been designated, rather than at intake, wellhead, or other point of consumption.”* Consistent with the CWC and the Basin Plan, the Regional Water Board applies the bacteria objective to all groundwater designated as municipal or domestic supply (MUN), not just those waters currently used for MUN.
- c. State Board Resolution No. 88-63 (Adoption of Policy Entitled “Sources of Drinking Water”) defines all groundwater of the State to be suitable or potentially suitable for MUN uses, and states that they should be designated as MUN in Basin Plans unless at least one the following three criteria are satisfied:
 - ◆ The total dissolved solids concentration of the resource exceeds 3,000 mg/L (5,000 umhos/cm, electrical conductivity) and it is not reasonably expected by the Regional Water Board to supply a public water system, or
 - ◆ There is contamination, either by natural processes or human activity (unrelated to a specific pollution incident), that cannot reasonably be treated for domestic use using either Best Management Practices or best economically achievable treatment practices, or
 - ◆ The water source does not provide sufficient water to supply a single well capable of producing an average sustained yield of 200 gallons per day.

Accordingly, the Regional Water Board designated all groundwater of the basins as suitable or potentially suitable for MUN in the Basin Plan (pages II-2.00 and -3.00). The Regional Water Board can only “de-designate” beneficial uses of a particular water resource through amendment of the Basin Plan.

75. State Board Order No. WQO-2003-0014 upheld the Regional Water Board’s interpretation of the Basin Plan with respect to implementation of the bacteria objective, stating: *“The Basin Plan contains a water quality objective for bacteria that applies to groundwater that states: ‘In groundwater used for domestic or municipal supply (MUN) the most probable number of coliform organisms over any seven-day period shall be less than 2.2/100 mL.’ Since the groundwater is designated for municipal or domestic supply, a groundwater limitation for coliform of less than 2.2 MPN/100 mL is appropriate.”*
76. The Basin Plan identifies numerical water quality objectives for waters designated as municipal supply. These are the maximum contaminant levels (MCLs) specified in the following provisions of Title 22, California Code of Regulations: Tables 64431-A (Inorganic Chemicals) and 64431-B (Fluoride) of Section 64431, Table 64444-A (Organic Chemicals) of Section 64444, and Table 64449-A (Secondary Maximum Contaminant Levels-Consumer Acceptance Limits) of Section 64449. The Basin Plan’s incorporation of these provisions by reference is prospective, and includes

future changes to the incorporated provisions as the changes take effect. The Basin Plan recognizes that the Regional Water Board may apply limits more stringent than MCLs to ensure that waters do not contain chemical constituents in concentrations that adversely affect beneficial uses.

77. The Basin Plan contains narrative water quality objectives for Chemical Constituents, Tastes and Odors, and Toxicity. The Toxicity objective, in summary, requires that groundwater be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life associated with designated beneficial uses. The Chemical Constituents objective requires that groundwater “shall not contain chemical constituents in concentrations that adversely affect beneficial uses.” The Tastes and Odors objective requires that groundwater “shall not contain taste- or odor-producing substances in concentrations that cause nuisance or adversely affect beneficial uses.” Chapter IV, Implementation, of the Basin Plan contains the “Policy for Application of Water Quality Objectives.” This Policy specifies, in part, that compliance with narrative water quality objectives may be evaluated considering numerical criteria and guidelines developed and/or published by other agencies and organizations.
78. Under the “Antidegradation” section, the attached Information Sheet lists the various waste constituents identified thus far as fitting the restriction of Finding Nos. 76 and 77, along with limits of each constituent necessary to maintain beneficial uses known to be adversely affected at certain concentrations of the waste constituent in groundwater. The listing identifies the constituent, the beneficial use and its associated limit, as well as the technical reference for the limit. Some limits become less restrictive when the water supply is limited to certain applications of a beneficial use, but that requires additional factual information. Interim groundwater limitations for each constituent reflect the most restrictive listed limit for the waste constituent, except if natural background quality is greater, in which case background becomes the interim limitation.
79. The State Water Board adopted Order No. 97-03-DWQ (General Permit No. CAS000001) specifying waste discharge requirements for discharges of storm water associated with industrial activities, and requiring submittal of a Notice of Intent by all affected industrial dischargers. Because the WWTF is on trust land, the Discharger is not required to obtain coverage under General Permit No. CAS000001.
80. In October 2002, the Discharger and the County of Yolo entered into a Memorandum of Understanding regarding mitigation of off-reservation impacts of the casino expansion and country club project.
81. On 3 May 2005, in accordance with the California Environmental Quality Act (CCR, Title 14, Section 15261 et. seq.), the Yolo County Planning and Public Works Department certified a Final Environmental Impact Report (EIR) for the Capay Hills Country Club. The Final EIR identified potentially significant non-point source groundwater quality impacts from irrigation of the golf course with reclaimed water (Impact No. 4.8.5). Mitigation Measure 4.8.5 specifies that the Discharger is required to monitor WWTF effluent quality to ensure compliance with Title 22 standards for tertiary treatment and take corrective action as required by the Regional Water Board to bring the discharge back into compliance. This mitigation measure is not sufficient to protect

groundwater quality because Title 22 imposes standards only for turbidity and coliform organisms. Additional requirements are needed to protect against unreasonable degradation from nitrate and other salinity species, and such requirements are incorporated into this Order.

The Final EIR also identified potential surface water impacts due to erosion and sedimentation associated with construction of the golf course and associated facilities (Impact No. 4.8.6) and to surface water and/or groundwater due to polluted runoff from the golf course (Impact No. 4.8.7). Mitigation Measures 4.8.6a, 4.8.6b, 4.8.7a, and 4.8.7b provide adequate mitigation for these potential impacts, and some of these measures are incorporated in this Order.

Compliance with this Order implements certain mitigation measures designed to minimize or prevent water quality impacts. However, compliance with this Order does not necessarily mean that all applicable mitigation measures have been implemented. Yolo County, as the lead agency, is responsible for ensuring compliance with all mitigation measures.

82. Section 13267(b) of the California Water Code provides that: “In conducting an investigation specified in subdivision (a), the regional board may require that any person who has discharged, discharges, or is suspected of discharging, or who proposes to discharge within its region, or any citizen or domiciliary, or political agency or entity of this state who has discharged, discharges, or is suspected of discharging, or who proposes to discharge waste outside of its region that could affect the quality of the waters of the state within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the board requires. The burden, including costs of these reports, shall bear a reasonable relationship to the need for the reports and the benefits to be obtained from the reports.” The monitoring and reporting program required by this Order and the attached Monitoring and Reporting Program No. R5-2006-0121 are necessary to assure compliance with these waste discharge requirements. The Discharger operates the facility that discharges the waste subject to this Order.
83. State regulations that prescribe procedures for detecting and characterizing the impact of waste constituents from waste management units on groundwater are found in Title 27. While the WWTF is exempt from Title 27, the data analysis methods of Title 27 are appropriate for determining whether the golf course discharge complies with the terms for protection of groundwater specified in this Order.
84. The discharge to fee land authorized herein is exempt from the requirements of Title 27, California Code of Regulations (CCR), Section 20380 et seq. (hereafter Title 27). The exemption, pursuant to Title 27 CCR Section 20090(a), is based on the following:
 - a. The waste consists primarily of domestic sewage and treated effluent; and
 - b. The waste discharge requirements are consistent with water quality objectives.
85. Pursuant to California Water Code Section 13263(g), discharge is a privilege, not a right, and adoption of this Order does not create a vested right to continue the discharge.

Public Notice

86. The Regional Water Board considered all the above and the supplemental information and details in the attached Information Sheet, which is incorporated by reference herein, in establishing the following conditions of discharge.
87. The Regional Water Board consulted with the State Department of Health Services and has considered their recommendations regarding the public health aspects of water recycling.
88. The Regional Water Board has notified the Discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for this discharge, and has provided them with an opportunity for a public hearing and an opportunity to submit their written views and recommendations.
89. The Regional Water Board, in a public meeting, heard and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED that the Rumsey Band of Wintun Indians, and its agents, successors, and assigns, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted hereunder, shall comply with the following with respect to discharges of waste to land held in fee simple by the Discharger and degradation of water quality outside of trust land associated with any discharge of waste:

[Note: Other prohibitions, conditions, definitions, and some methods of determining compliance are contained in the attached "Standard Provisions and Reporting Requirements for Waste Discharge Requirements" dated 1 March 1991.]

A. Discharge Prohibitions

1. The use of reclaimed water for irrigation is prohibited unless and until all disinfection system improvements described in Finding Nos. 21 through 26, inclusive, are completed and DHS approves the required tracer study report.
2. Discharge of wastes to surface waters or surface water drainage courses is prohibited.
3. Bypass or overflow of untreated or partially treated waste is prohibited.
4. Discharge of treated wastewater other than at the designated golf course irrigation areas is prohibited.
5. Discharge of waste classified as 'hazardous' under Section 2521, Chapter 15 of Title 23 or 'designated', as defined in Section 13173 of California Water Code is prohibited.
6. Application of recycled water in a manner other than that described in Finding Nos. 27 through 43, inclusive, is prohibited.

7. The use of reclaimed wastewater for purposes other than irrigation and filling of decorative water features is prohibited.

B. Discharge Specifications

1. The use of recycled water shall not cause pollution or a nuisance as defined by Section 13050 of the California Water Code (CWC).
2. No waste constituent shall be released or discharged, or placed where it will be released or discharged, in a concentration or in a mass that causes violation of the Groundwater Limitations.
3. Objectionable odors originating at the facility shall not be perceivable beyond the limits of the property owned by the Discharger.
4. As a means of discerning compliance with Discharge Specification B.3, the dissolved oxygen content in the upper one foot of any pond containing reclaimed water shall not be less than 1.0 mg/l.
5. The Discharger shall operate all systems and equipment to maximize treatment of wastewater and optimize the quality of the discharge.
6. The Discharger shall treat the wastewater such that it complies with Title 22 CCR, Section 60301.230 ("Disinfected Tertiary Recycled Water").
7. All reclaimed water storage structures/facilities shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return frequency. Portions of the golf course that are within the 100-year flood plain shall not be irrigated with recycled effluent during periods of flooding or imminent flooding.
8. All ponds and water features that contain reclaimed water shall be managed to prevent breeding of mosquitoes. In particular,
 - a. An erosion control program shall be implemented to ensure that small coves and irregularities are not created around the perimeter of the water surface.
 - b. Weeds shall be minimized through control of water depth, harvesting, or herbicides.
 - c. Dead algae, vegetation, and debris shall not accumulate on the water surface.
9. Freeboard in any pond containing reclaimed wastewater shall never be less than two feet as measured from the water surface to the lowest point of overflow.
10. The Discharger shall provide sufficient effluent storage capacity to accommodate actual wastewater flow, all infiltration and inflow, agronomic use of reclaimed water, and design seasonal precipitation to ensure complete containment of the waste at all times. Design seasonal precipitation shall be based on total annual precipitation using a return period of 100 years, distributed monthly in accordance with historical rainfall patterns.

11. On or about **15 October** of each year, available effluent storage capacity shall at least equal to the volume necessary to comply with Discharge Specification B.10.

C. Effluent Limitations

1. Reclaimed water discharged to the golf course irrigation system shall not exceed the following effluent limits:

Constituent	Effluent Concentration Limit	
	30-Day Average	Daily Average
BOD ₅ (mg/L) ¹	10	20
Settleable Solids (ml/L)	0.1	0.2
Total Nitrogen (mg/L) ²	10	20

¹ 5-day biochemical oxygen demand.

² Sum of Total Kjeldahl Nitrogen and nitrate nitrogen

2. **Effective immediately**, reclaimed water discharged to the golf course irrigation system shall not exceed the following interim effluent limits for salinity:

Constituent	Effluent Concentration Limit (30-Day Flow-weighted Average)
Total dissolved solids (mg/L)	1,300
Chloride (mg/L)	450
Sodium (mg/L)	350

3. **Effective 30 June 2008**, the combination of fresh water and reclaimed water discharged to the golf course irrigation system shall not exceed the following effluent limits for salinity or the background groundwater concentration (whichever is higher) unless the Discharge demonstrates that higher limits will ensure compliance with Resolution No. 68-16:

Constituent	Effluent Concentration Limit (30-Day Flow-weighted Average)
Total dissolved solids (mg/L)	650
Chloride (mg/L)	106
Sodium (mg/L)	69

4. Reclaimed water discharged to the golf course irrigation system shall comply with the following limits for total coliform organisms:

- a. The median concentration of total coliform bacteria shall not exceed an MPN of 2.2 per 100 milliliters utilizing the bacteriological results of the last seven days for which analyses have been completed.
 - b. The number of total coliform bacteria shall not exceed an MPN of 23 per 100 milliliters in more than one sample in any 30-day period.
 - c. The number of total coliform bacteria shall never exceed an MPN of 240 total coliform bacteria per 100 milliliters.
5. The turbidity of the WWTF filter effluent shall not exceed 2.0 NTU as a daily average; shall not exceed 5 NTU more than 5 percent of the time during a 24 hour period; and shall never exceed 10 NTU.
 6. No reclaimed water discharged to the golf course irrigation system shall have a pH less than 6.5 or greater than 8.5.

E. Water Recycling Specifications

1. Recycled wastewater used for irrigation shall meet the criteria contained in Title 22, CCR.
2. Public contact with recycled wastewater at the golf course shall be controlled through use of fences and cautionary signs, and/or other appropriate means. Perimeter warning signs indicating that recycled water is in use shall be posted at adequate intervals along the property boundary and at each access road entrance to the irrigation area, including golf cart paths. The size and contents of these signs shall be as described in Section 60310 of Title 22.
3. There shall be a minimum setback distance of 50 feet between the edge of the irrigated area to any domestic well.
4. Recycled water controllers, valves, and similar appurtenances shall be affixed with recycled water warning signs, and shall be equipped with removable handles or locking mechanisms to prevent public access or tampering. The contents of the signs shall conform to Section 60310 of Title 22, and the DHS District Engineer's requirements. Each sign shall be in English and Spanish languages.
5. Quick couplers and sprinkler heads, if used, shall be of a type, or secured in a manner, that permits operation only by authorized personnel. Hose bibs and other unlocked valves shall not be accessible to the public.
6. Any connection between the recycled water conveyance system and any potable water conveyance system, groundwater supply well, or surface water supply source for the purpose of supplementing recycled water shall be equipped with a DHS-approved backflow prevention device.
7. Direct or windblown spray of recycled water shall be confined to the designated land application area and shall be prevented from entering outdoor eating areas, dwellings, drinking water facilities, food handling facilities, and other locations where the public may be present. In addition, direct or windblown spray of recycled water shall not enter surface watercourses.

8. Spray irrigation with recycled water is prohibited when wind velocities exceed 30 mph.
9. Recycled water shall be used in compliance with Title 22, Article 3 (“Uses of Recycled Water”).
10. The Discharger shall fully implement the Golf Course Irrigation and Runoff Management Plan submitted with the RWD and any approved revisions thereto.
11. Irrigation runoff from the golf course shall be completely contained within the designated golf course irrigation area, and shall not be discharged to any surface water.
12. Irrigation with recycled water shall not be performed within 24 hours of a forecasted storm, during or within 24 hours after any precipitation event, nor when the ground is saturated.
13. Application rates for recycled water shall not exceed agronomic rates considering the turf type, soil, climate, and irrigation management system in accordance with the Golf Course Irrigation and Runoff Management Plan.
14. The golf course recycling area shall be managed to prevent breeding of mosquitoes. In particular:
 - a. There shall be no standing water 12 hours after irrigation;
 - b. Tailwater ditches must be maintained essentially free of emergent, marginal, and floating vegetation, and;
 - c. Low-pressure and unpressurized pipelines and ditches accessible to mosquitoes shall not be used to store effluent.

F. Groundwater Limitations

1. Release of waste constituents from the golf course shall not cause groundwater under and beyond that area, as determined by an approved well monitoring network, to:
 - a. Contain any of the following constituents in concentrations greater than those listed below or greater than ambient background groundwater quality, whichever is greater:

Constituent	Units	Limitation
Arsenic	ug/L	0.004
Cadmium	ug/L	0.07
Chloride	mg/L	106
Chromium	ug/L	50
Copper	ug/L	170
Iron	ug/L	300
Lead	ug/L	2

Constituent	Units	Limitation
Manganese	ug/L	0.5
Mercury	ug/L	1.2
Nickel	ug/L	12
Silver	ug/L	85
Sodium	mg/L	69
Zinc	mg/L	2
Total trihalomethanes	ug/L	80
Bromoform	ug/L	4
Bromodichloromethane	ug/L	0.27
Chloroform	ug/L	1.1
Dibromochloromethane	ug/L	0.37
Total Coliform Organisms	MPN/100 mL	<2.2 over any 7-day period
Total Dissolved Solids ¹	mg/L	450

¹ A cumulative impact limit that accounts for several dissolved constituents in addition to those listed here separately [e.g., alkalinity (carbonate and bicarbonate), calcium, hardness, phosphate, and potassium].

- b. Exhibit a pH of less than 6.5 or greater than 8.4 pH units.
- c. Impart taste, odor, toxicity, or color that creates nuisance or impairs any beneficial use.

G. Provisions

1. All of the following reports shall be submitted pursuant to Section 13267 of the California Water Code and shall be prepared as described in Provision G.3.
 - a. At least **60 days prior** to any planned use of reclaimed water for golf course irrigation, the Discharger shall submit a *Tracer Study Report* documenting complete compliance with any and all DHS requirements for disinfection system performance verification to both DHS and the Regional Water Board.
 - b. By **28 February 2007**, the Discharger shall submit a *Monitoring Well Installation Workplan*. The workplan shall describe the proposed installation of groundwater monitoring wells sufficient to characterize groundwater gradient and groundwater quality upgradient and down gradient of the golf course. Monitoring wells shall be constructed to yield representative samples from the uppermost layer of the uppermost aquifer and to comply with applicable well standards. The workplan shall be consistent with, and include the items listed in, the first section of Attachment E, which is attached hereto and made part of this Order by reference.

- c. By **30 March 2007**, the Discharger shall submit an Irrigation System Inspection Plan detailing the procedures and schedule for regular inspections designed to ensure that sprinkler heads and other system elements are functioning properly to minimize incidental runoff during irrigation, prevent direct spray into water features containing fresh water, and prevent potential surface water discharges of treated effluent via the irrigation system. The plan shall include as-built irrigation system plans that highlight sprinkler heads located along property boundaries, areas adjacent to surface watercourses, and areas adjacent to features containing fresh water. It shall include specific procedures for inspections and system adjustments or modifications to be made immediately upon discovery of any malfunction that threatens to cause a violation of this Order.
 - d. By **30 June 2007**, the Discharger shall submit a *Monitoring Well Installation Report* that describes the installation of groundwater monitoring wells and contains the items found in the second and third sections of Attachment E.
 - e. By **30 June 2009**, the Discharger shall submit a *Background Groundwater Quality Report*. For each groundwater monitoring parameter/constituent identified in the MRP, the report shall present a summary of all monitoring data (including data obtained prior to adoption of this Order) and calculation of the concentration in background monitoring well(s). This determination of background groundwater quality shall be made using the methods described in Title 27, Section 20415(e)(10), and shall be based on data from at least 8 consecutive groundwater monitoring events. For each monitoring parameter/constituent, the report shall compare the measured concentration in each compliance monitoring well with the proposed background concentration.
2. If the results of the *Background Groundwater Quality Report*, or any subsequent technical or monitoring report, shows that the discharge of reclaimed water has caused, or is likely to cause, exceedance of any applicable water quality limit outside the boundary of trust land, the Discharger shall submit an *Antidegradation Policy Compliance Report* within **120 days** of the Executive Officer's request. The report shall propose a detailed plan and schedule for achieving full compliance with the Antidegradation Policy.
 3. In accordance with California Business and Professions Code Sections 6735, 7835, and 7835.1, engineering and geologic evaluations and judgments shall be performed by or under the direction of registered professionals competent and proficient in the fields pertinent to the required activities. All technical reports specified herein that contain workplans for investigations and studies, that describe the conduct of investigations and studies, or that contain technical conclusions and recommendations concerning engineering and geology shall be prepared by or under the direction of appropriately qualified professional(s), even if not explicitly stated. Each technical report submitted by the Discharger shall contain a statement of qualifications of the responsible licensed professional(s) as well as the professional's signature and/or stamp of the seal.
 4. The Discharger shall comply with the Monitoring and Reporting Program No. R5-2006-0121, which is part of this Order, and any revisions thereto as ordered by the Executive Officer.

5. The Discharger shall comply with the "Standard Provisions and Reporting Requirements for Waste Discharge Requirements", dated 1 March 1991, which are attached hereto and made part of this Order by reference. This attachment and its individual paragraphs are commonly referenced as "Standard Provision(s)."
6. The Discharger shall use the best practicable cost-effective control technique(s) including proper operation and maintenance, to comply with discharge limits specified in this order.
7. As described in the Standard Provisions, the Discharger shall report promptly to the Regional Water Board any material change or proposed change in the character, location, or volume of the discharge.
8. The Discharger shall submit to the Regional Water Board on or before each compliance report due date, the specified document or, if appropriate, a written report detailing compliance or noncompliance with the specific schedule date and task. If noncompliance is being reported, then the Discharge shall state the reasons for such noncompliance and provide an estimate of the date when the Discharger will be in compliance. The Discharger shall notify the Regional Water Board in writing when it returns to compliance with the time schedule.
9. In the event of any change in control or ownership of the facility or land application areas, the Discharger must notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be immediately forwarded to this office. To assume operation as Discharger under this Order, the succeeding owner or operator must apply in writing to the Executive Officer requesting transfer of the Order. The request must contain the requesting entity's full legal name, the state of incorporation if a corporation, the name and address and telephone number of the persons responsible for contact with the Regional Water Board, and a statement. The statement shall comply with the signatory paragraph of Standard Provision B.3 and state that the new owner or operator assumes full responsibility for compliance with this Order. Failure to submit the request shall be considered a discharge without requirements, a violation of the California Water Code. Transfer shall be approved or disapproved by the Executive Officer.
10. At least **90 days** prior to termination or expiration of any lease, contract, or agreement involving disposal or recycling areas or off-site reuse of effluent, used to justify the capacity authorized herein and assure compliance with this Order, the Discharger shall notify the Regional Water Board in writing of the situation and of what measures have been taken or are being taken to assure full compliance with this Order.
11. The Discharger must comply with all conditions of this Order, including timely submittal of technical and monitoring reports as directed by the Executive Officer. Violations may result in enforcement action, including Regional Water Board or court orders requiring corrective action or imposing civil monetary liability, or in revision or recession of this Order.
12. A copy of this Order shall be kept at the discharge facility for reference by operating personnel. Key operating personnel shall be familiar with its contents.

13. The Regional Water Board will review this Order periodically and will revise requirements when necessary.

I, PAMELA C. CREEDON, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on 26 October 2006.

PAMELA C. CREEDON, Executive Officer

ALO:10/27/06

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2006-0121
FOR
THE RUMSEY BAND OF WINTUN INDIANS
CACHE CREEK GOLF CLUB WATER RECLAMATION PROJECT
YOLO COUNTY

This Monitoring and Reporting Program (MRP) describes requirements for monitoring domestic wastewater treatment, reclaimed water, supplemental irrigation supply water, and groundwater. This MRP is issued pursuant to Water Code Section 13267. The Discharger shall not implement any changes to this MRP unless and until a revised MRP is issued by the Executive Officer.

Specific sample station locations shall be approved by Regional Water Board staff prior to implementation of sampling activities. All samples shall be representative of the volume and nature of the discharge or matrix of material sampled. The time, date, and location of each sample shall be recorded on the sample chain of custody form.

Field test instruments (such as those used to test pH and electrical conductivity) may be used provided that:

1. The user is trained in proper use and maintenance of the instruments;
2. The instruments are field calibrated prior to monitoring events at the frequency recommended by the manufacturer;
3. Instruments are serviced and/or calibrated by the manufacturer at the recommended frequency; and
4. Field calibration reports are submitted as described in the "Reporting" section of this MRP.

TERTIARY EFFLUENT MONITORING

The Discharger shall monitor tertiary effluent in accordance with the following. Tertiary effluent samples shall be taken downstream of the chlorine contact basin at the chlorine residual analyzer (except for the purpose of turbidity monitoring). Except as specifically noted below, grab samples will be considered representative of tertiary effluent. Tertiary effluent monitoring shall include, at a minimum, the following:

<u>Constituent</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling Frequency</u>	<u>Reporting Frequency</u>
Flow	gpd	Continuous	Daily	Monthly
Turbidity ¹	NTU	Continuous	Daily	Monthly ¹
Total Chlorine Residual	mg/L	Continuous	Daily	Monthly
Total Coliform Organisms ²	MPN/100 ml	Grab	Daily	Monthly
PH	pH units	Grab	Weekly	Monthly
Total Dissolved Solids	mg/L	Grab	Weekly	Monthly

<u>Constituent</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling Frequency</u>	<u>Reporting Frequency</u>
Sodium	mg/L	Grab	Weekly	Monthly
Chloride	mg/L	Grab	Weekly	Monthly
Nitrate nitrogen	mg/L	Grab	Monthly	Monthly
<u>Total Kjeldahl nitrogen</u>	<u>mg/L</u>	Grab	Monthly	Monthly

¹ For each day, report the minimum and maximum recorded turbidity, the total amount of time that turbidity exceeded 5 NTU, and the total amount of time that turbidity exceeded 10 NTU.

² Using a minimum of 15 tubes or three dilutions.

SUPPLEMENTAL WATER SUPPLY MONITORING

The Discharger shall monitor supplementary irrigation water used at the golf course in accordance with the following. Samples shall be taken from the fresh water supply pipeline that was in use at, or just prior to, the sampling date. Grab samples will be considered representative. Supplemental water supply monitoring shall include, at a minimum, the following:

<u>Constituent</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling Frequency</u>	<u>Reporting Frequency</u>
pH	pH units	Grab	Weekly	Monthly
Total Dissolved Solids	mg/L	Grab	Weekly	Monthly
Sodium	mg/L	Grab	Weekly	Monthly
Chloride	mg/L	Grab	Weekly	Monthly

RECLAIMED WATER STORAGE LAKE MONITORING

The Discharger shall monitor South Lake in accordance with the following. Samples shall be collected from one or more permanent monitoring locations that will provide representative samples. Freeboard shall be measured vertically from the water surface to the lowest possible point of overflow (or spillway/overflow pipe invert), and shall be measured to the nearest 0.10 feet. Pond monitoring shall include, at a minimum, the following:

<u>Constituent/Parameter</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling Frequency</u>	<u>Reporting Frequency</u>
Freeboard ¹	0.1 feet	Measurement	Weekly	Monthly
Dissolved Oxygen ²	mg/L	Grab	Weekly	Monthly
<u>Odors</u>	<u>---</u>	observation	Daily	Monthly

- ¹ Report date(s) and estimated volume of overflows to fee land and/or surface water, if any.
- ² Samples shall be collected opposite the pond inlet at a depth of one foot between 0700 and 0900 hours.

GOLF COURSE RECLAMATION MONITORING

The Discharger shall monitor reclamation activities at the golf course in accordance with the following. Reclamation monitoring shall be performed daily and the results shall be included in the monthly monitoring report. Erosion, ground saturation, tailwater runoff, reclaimed water storage lake overflows, and nuisance conditions shall be noted in the report. Reclaimed water shall also be monitored to determine loading rates at the golf courses. Reclamation monitoring shall include the following:

<u>Constituent</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling Frequency</u>	<u>Reporting Frequency</u>
Flow from Cache Creek to Five Pond	gpd	Continuous	Daily	Monthly
Flow from South Lake to irrigation areas	gpd	Continuous	Daily	Monthly
Rainfall	inches	Measurement	Daily	Monthly
Acreage Applied ¹	acres	Calculated	Daily	Monthly
Water Application Rate:				
Reclaimed water	gal/acre/day	Calculated	Daily	Monthly
Fresh water	gal/acre/day	Calculated	Daily	Monthly
Nitrogen Loading Rate ²	lbs/ac/month	Calculated	Monthly	Monthly
Dissolved Solids Loading Rate	lbs/ac/month	Calculated	Monthly	Monthly

¹ Specific irrigation areas shall be identified.

² Including chemical fertilizers.

GROUNDWATER MONITORING

Upon completion of monitoring well installation, and **no later than the second quarter of 2007**, the Discharger shall establish a quarterly sampling schedule for groundwater monitoring, with samples obtained approximately every three months.

This monitoring program applies to all monitoring wells designated to monitor groundwater up gradient and downgradient of the golf course. Prior to construction of any groundwater monitoring wells, the Discharger shall submit plans and specifications to the Regional Water Board for review and approval. Once installed, all new monitoring wells shall be added to the MRP, and shall be sampled and analyzed according to the schedule below. Monitoring wells used to monitor the golf course shall

not be disinfected except as expressly approved pursuant to submittal of an appropriate disinfection protocol.

Prior to well purging, groundwater elevations shall be measured. Depth to groundwater shall be measured to the nearest 0.01 feet. Water table elevations shall be calculated and used to determine groundwater gradient and direction of flow. The monitoring wells shall be purged of at least three well volumes or until temperature, pH, and electrical conductivity have stabilized. Samples shall be collected and analyzed using approved EPA methods. Groundwater monitoring shall include, at a minimum, the following:

<u>Constituent</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling and Reporting Frequency</u>
Depth to groundwater	0.01 feet	Measurement	Quarterly
Groundwater elevation ¹	0.01 feet	Calculated	Quarterly
Gradient	feet/feet	Calculated	Quarterly
Gradient direction	degrees	Calculated	Quarterly
pH	pH units	Grab	Quarterly
Total Dissolved Solids	mg/L	Grab	Quarterly
Nitrate nitrogen	mg/L	Grab	Quarterly
Ammonia nitrogen	mg/L	Grab	Quarterly
Total Coliform Organisms ²	MPN/100 ml	Grab	Quarterly
Standard minerals ³	mg/L	Grab	Quarterly
Metals ⁴	ug/L	Grab	Quarterly
Total Trihalomethanes ⁵	ug/L	Grab	Quarterly

¹ Groundwater elevations shall be determined based on depth-to-water measurements using a surveyed measuring point elevation on the well and a surveyed reference elevation.

² Using a minimum of 15 tubes or three dilutions

³ Standard Minerals shall include, at a minimum, the following elements/compounds: boron, bromide, calcium, chloride, fluoride, magnesium, phosphate, potassium, sodium, sulfate, total alkalinity (including alkalinity series), and hardness as CaCO₃.

⁴ At a minimum, the following metals shall be included: aluminum, arsenic, cadmium, copper, lead, iron, manganese, nickel, and zinc. Analytical methods shall be selected to provide reporting limits below the Water Quality Limit for each constituent.

⁵ Using US EPA Method 8260B or approved equivalent. Individual trihalomethane constituent concentrations shall be reported.

REPORTING

In reporting monitoring data, the Discharger shall arrange the data in tabular form so that the date, sample type (e.g., effluent, pond, etc.), and reported analytical result for each sample are readily discernible. The data shall be summarized in such a manner to clearly illustrate compliance with waste

discharge requirements and spatial or temporal trends, as applicable. The results of any monitoring done more frequently than required at the locations specified in the Monitoring and Reporting Program shall be reported to the Regional Water Board.

As required by the California Business and Professions Code Sections 6735, 7835, and 7835.1, all Groundwater Monitoring Reports shall be prepared under the direct supervision of a registered Professional Engineer or Geologist and signed by the registered professional.

A. Monthly Monitoring Reports

Monthly reports shall be submitted to the Regional Water Board on the **1st day of the second month following sampling** (i.e. the January Report is due by 1 March). At a minimum, the monthly monitoring reports shall include:

1. Results of the following monitoring:
 - a. Tertiary effluent monitoring;
 - b. Supplemental water supply monitoring;
 - c. Reclaimed water storage lake monitoring; and
 - d. Golf course reclamation monitoring.
2. Calculation of the 30-day flow-weighted average concentrations of total dissolved solids, sodium, and chloride for the reclaimed water and the combination of reclaimed and fresh water.
3. A comparison of monitoring data to the discharge specifications and an explanation of any violation of those requirements. Data shall be presented in tabular format.
4. If requested by staff, copies of laboratory analytical report(s).

B. Quarterly Monitoring Reports

Beginning with the second quarter of 2007, the Discharger shall submit quarterly monitoring reports to the Regional Water Board by the **1st day of the second month after the quarter** (i.e. the January-March quarter is due by May 1st) each year. The Quarterly Monitoring Report shall include the following:

1. Results of groundwater monitoring;
2. A narrative description of all preparatory, monitoring, sampling, and analytical testing activities for the groundwater monitoring. The narrative shall be sufficiently detailed to verify compliance with the WDRs, this MRP, and the Standard Provisions and Reporting Requirements. The narrative shall be supported by field logs for each well documenting depth to groundwater; parameters measured before, during, and after purging; method of purging; calculation of casing volume; and total volume of water purged;

3. Calculation of groundwater elevations, an assessment of groundwater flow direction and gradient on the date of measurement, comparison of previous flow direction and gradient data, and discussion of seasonal trends, if any;
4. A narrative discussion of the analytical results for all groundwater locations monitored including spatial and temporal trends, with reference to summary data tables, graphs, and appended analytical reports (as applicable);
5. A comparison of monitoring data to the groundwater limitations and an explanation of any violation of those requirements;
6. Summary data tables of historical and current water table elevations and analytical results;
7. A scaled map showing relevant structures and features of the facility, the locations of monitoring wells and any other sampling stations, and groundwater elevation contours referenced to mean sea level datum;
8. Copies of laboratory analytical report(s) for groundwater monitoring.

C. Annual Report

An Annual Report shall be prepared as the fourth quarter monitoring report. The Annual Report shall include all monitoring data required in the monthly/quarterly schedule. The Annual Report shall be submitted to the Regional Water Board by **1 February** each year. In addition to the data normally presented, the Annual Report shall include the following:

1. The contents of the regular quarterly monitoring report for the last quarter of the year.
2. Analytical results for all annual monitoring.
3. If requested by staff, tabular and graphical summaries of all data collected during the year;
4. An evaluation of the performance of the WWTF which demonstrates the facility's ability to consistently meet treatment standards for recycled water use on a public golf course specified in Title 22, Division 4, CCR (Section 60301, et seq.), as well as a forecast of the flows anticipated in the next year;
5. An evaluation of the groundwater quality beneath the golf course;
6. A discussion of compliance and the corrective action taken, as well as any planned or proposed actions needed to bring the discharge into full compliance with the waste discharge requirements;
7. A discussion of any data gaps and potential deficiencies/redundancies in the monitoring system or reporting program;

A letter transmitting the self-monitoring reports shall accompany each report. The letter shall include a discussion of requirement violations found during the reporting period, and actions taken or planned for correcting noted violations, such as operation or facility modifications. If the Discharger has previously submitted a report describing corrective actions and/or a time schedule for implementing the corrective actions, reference to the previous correspondence will be satisfactory. The transmittal letter shall contain the penalty of perjury statement by the Discharger, or the Discharger's authorized agents, as described in the Standard Provisions General Reporting Requirements Section B.3.

The Discharger shall implement the above monitoring program as of the date of this Order.

Ordered by: _____
PAMELA C. CREEDON, Executive Officer

26 October 2006
(Date)

ALO:10/27/06

INFORMATION SHEET

ORDER NO. R5-2006-0121

THE RUMSEY BAND OF WINTUN INDIANS

CACHE CREEK GOLF CLUB WATER RECLAMATION PROJECT

YOLO COUNTY

Background

The Rumsey Band of Wintun Indians owns and operates a wastewater treatment facility (WWTF) that serves the Cache Creek Casino Resort and Hotel near the town of Brooks in western Yolo County. The Discharger is constructing a golf course, clubhouse, and ancillary facilities known as the Cache Creek Golf Club, and plans to use reclaimed tertiary disinfected wastewater to irrigate the golf course.

The WWTF and part of the golf course are on land held in trust for the Discharger by the United States Bureau of Indian Affairs ("trust land"), but the clubhouse, ancillary facilities, and portions of the golf course are on land owned in fee simple by the Discharger ("fee land"). The WWTF and discharges of waste to trust land are regulated by the United States Environmental Protection Agency (USEPA) and are not subject to regulation by the Regional Water Board. However, the Regional Water Board has the authority to enforce applicable laws, regulations, and policies with respect to discharges that occur outside of trust land, and with respect to water quality degradation or pollution that may originate on trust land, but is detectable outside the confines of trust land. Therefore, this Order regulates discharges of waste to the fee land portion of the golf club facility and potential degradation or pollution of surface water or groundwater that may occur outside of trust land as a result of the discharge.

The WWTF design flow is 225,000 gallons per day (gpd) as an average daily flow; 350,000 gpd as a peak weekend daily flow; and 475,000 gpd as a peak holiday daily flow. A microfiltration membrane bioreactor (MBR) system provides tertiary treatment. Tertiary treated wastewater from the MBR system is currently disinfected by ultraviolet light and is then stored or transferred for recycling or land disposal on trust land. The Discharger proposes to modify the disinfection system so that disinfection will be achieved solely by the use of sodium hypochlorite.

Tertiary disinfected effluent will be reclaimed to irrigate the golf course, which is approximately 3,000 feet east of the casino complex along the western bank of Cache Creek. The southern portion of the golf course and the irrigation storage pond (South Lake) are on trust land. The northern portion of the golf course, the driving range, and a large decorative pond (North Lake) are on fee land. A clubhouse and a golf cart barn will also be on fee land.

Reclaimed water will supply approximately 44 percent of the total golf course irrigation demand. During the rainy season, treated effluent will be stored at the WWTF or discharged to a leachfield system on trust land. Additionally, some of the disinfected effluent is used for toilet flushing at the casino.

The treated effluent greatly exceeds applicable water quality limits for electrical conductivity, total dissolved solids, sodium, and chloride due to use of an ion exchange water softening system for the casino complex water supply. Despite the dilution with fresh water for irrigation, based on the high salinity of the treated effluent relative to underlying groundwater, the proposed discharge poses a threat to groundwater quality.

The derivation of selected terms and conditions of the proposed Order is discussed below.

Proposed Order Terms and Conditions

The antidegradation directives of Section 13000 of the California Water Code require that waters of the State that are better in quality than established water quality objectives be maintained “consistent with the maximum benefit to the people of the State.” Waters can be of high quality for some constituents or beneficial uses and not others. Policies and procedures for complying with this directive are set forth in the Basin Plan (including by reference State Water Board Resolution No. 68-16, “Statement of Policy With Respect to Maintaining High Quality Waters in California,” or “Antidegradation” Policy).

Resolution 68-16 is applied on a case-by-case, constituent-by-constituent basis in determining whether a certain degree of degradation can be justified. It is incumbent upon the Discharger to provide technical information for the Regional Water Board to evaluate that fully characterizes:

- All waste constituents to be discharged;
- The background quality of the uppermost layer of the uppermost aquifer;
- The background quality of other waters that may be affected;
- The underlying hydrogeologic conditions;
- Waste treatment and control measures;
- How treatment and control measures are justified as best practicable treatment and control;
- The extent the discharge will impact the quality of each aquifer; and
- The expected degree of degradation.

In allowing a discharge, the Regional Water Board must comply with CWC section 13263 in setting appropriate conditions. The Regional Water Board is required to implement the Basin Plan and consider the beneficial uses to be protected along with the water quality objectives essential for that purpose. The Regional Water Board need not authorize the full utilization of the waste assimilation capacity of the groundwater (CWC 13263(b)) and must consider other waste discharges and factors that affect that capacity.

Some degradation of the groundwater for certain constituents is consistent with maximum benefit to the people of California because the technology, energy, and waste management advantages of advanced treatment and water recycling outweigh the environmental impact of a facility that would otherwise rely on percolation for effluent disposal. Economic prosperity of local communities is of maximum benefit to the people of California, and there is therefore sufficient reason to accommodate this wastewater discharge, provided terms of reasonable degradation are defined and met. The proposed Order authorizes some degradation consistent with the maximum benefit to the people of the State.

Groundwater Limitations

The limited groundwater quality information provided in the RWD is not sufficient to determine final groundwater limitations. The interim groundwater limitations of the proposed Order are limited to those constituents known to be present in the waste, except for trihalomethanes, which are expected to be present in the waste because of chlorine disinfection. An interim groundwater limitation for each constituent was selected in accordance with the most stringent limits set forth in the Basin Plan. The values tabulated below reflect water quality objectives that must be met to maintain specific beneficial uses of groundwater. The most stringent value applies unless it has been demonstrated that background groundwater quality exceeds that value or the beneficial use that is it designed to protect could not exist. For instance, the most stringent limit for TDS (450 mg/L) is based on protection of irrigation supply for the most salt-sensitive crops. If it can be shown that salt-sensitive crops will not be grown due to local climate and/or soil conditions, then the next highest limit applies. In general, the burden of making such a demonstration falls on the discharger.

<u>Constituent</u>	<u>Units</u>	<u>Value</u>	<u>Beneficial Use</u>	<u>Criteria or Justification</u>
Arsenic	ug/L	0.004	MUN ¹	California Public Health Goal ¹⁰
Cadmium	ug/L	0.07	MUN ¹	California Public Health Goal ¹⁰
Chloride	mg/L	106	AGR ²	Chloride sensitivity on certain crops irrigated via sprinklers ³
		142	AGR ²	Chloride sensitivity on certain crops ³
		250	MUN ¹	Recommended Secondary MCL ⁴
		500	MUN ¹	Upper Secondary MCL ⁴
Chromium, total	ug/L	50	MUN ¹	Primary MCL ⁵
Copper	ug/L	170	MUN ¹	California Public Health Goal ¹⁰
Iron	ug/L	0.3	MUN ¹	Secondary MCL ⁵
Lead	ug/L	2	MUN ¹	California Public Health Goal ¹⁰
Manganese	ug/L	0.05	MUN ¹	Secondary MCL ⁵
Mercury	ug/L	1.2	MUN ¹	California Public Health Goal ¹⁰
Nickel	ug/L	12	MUN ¹	California Public Health Goal ¹⁰
Sodium	mg/L	69	AGR ²	Sodium sensitivity on certain crops ³
Zinc	ug/L	2,000	AGR ²	Irrigation of crops ³
		2,100	MUN ¹	USEPA Cancer Risk Estimate ⁶
Total Dissolved Solids	mg/L	450 ⁸	AGR ²	Salt sensitivity for certain crops ³
		500	MUN ¹	Recommended Secondary MCL ⁴
		1,000	MUN ¹	Upper Secondary MCL ⁴
Total Coliform Organisms	MPN/100 ml	Less than 2.2	MUN ¹	Basin Plan

INFORMATION SHEET
ORDER NO. R5-2006-0121
THE RUMSEY BAND OF WINTUN INDIANS
CACHE CREEK GOLF CLUB WATER RECLAMATION PROJECT
YOLO COUNTY

-4-

<u>Constituent</u>	<u>Units</u>	<u>Value</u>	<u>Beneficial Use</u>	<u>Criteria or Justification</u>
Trihalomethanes	ug/L	80	MUN ¹	Federal MCL ⁹
Bromoform	ug/L	4	MUN ¹	USEPA Cancer Risk Estimate ⁶
Bromodichloromethane	ug/L	0.27	MUN ¹	Cal/EPA Cancer Potency Factor ⁷
Chloroform	ug/L	1.1	MUN ¹	Cal/EPA Cancer Potency Factor ⁷
Dibromochloromethane	ug/L	0.37	MUN ¹	Cal/EPA Cancer Potency Factor ⁷
pH	pH Units	6.5 to 8.5	MUN ¹	USEPA Secondary MCL ⁸
		6.5 to 8.4	AGR ²	Irrigation of crops ³

- 1 Municipal and domestic supply.
- 2 Agricultural supply.
- 3 Ayers, R. S. and D. W. Westcot, Water Quality for Agriculture, Food and Agriculture Organization of the United Nations – Irrigation and Drainage Paper No. 29, Rev. 1, Rome (1985).
- 4 Title 22, California Code of Regulations (CCR), Section 64449, Table 64449-B.
- 5 Title 22, CCR, Section 64449, Table 64449-A.
- 6 USEPA Integrated Risk Information System.
- 7 Cal/EPA Toxicity Criteria Database (OEHHA).
- 8 40 Code of Federal Regulations, 143.3.
- 9 40 Code of Federal Regulations, 141.64.
- 10 Negligible cancer risk level for drinking water (OEHHA).

Groundwater upgradient of the golf course may be of high quality relative to the mixture of fresh water and treated effluent to be used for golf course irrigation. Therefore, groundwater monitoring is required. If determination of background concentrations supports this empirical observation, then the most stringent limits cited in the table above will be the final groundwater limitation for those constituents. Otherwise, the statistically determined background groundwater concentration will be the final groundwater limitation for those constituents (and any others whose background groundwater concentrations exceed applicable water quality limits).

Discharge Prohibition A.1 and Provision G.1.a

Although the California Department of Health Services (DHS) has approved the Discharger's Title 22 Engineering Report and related design submittals, the Discharger has not yet completed a tracer study to demonstrate that the new effluent disinfection systems meets DHS' reliability requirements. Therefore, Discharge Prohibition A.1 prohibits irrigation with recycled water until DHS approves the tracer study report, and Provision G.1.a specifies the required contents and time schedule for submittal of the report.

Effluent Limitations

The effluent limitations for BOD, settleable solids, and total nitrogen are technology-based, and the discharger should be able to consistently comply with these limits if influent flows do not exceed the design criteria and the WWTF is well operated and maintained.

Because of the high salinity of the effluent and the potential for groundwater pollution due to salinity, it is appropriate to limit the salinity of the discharge unless it can be shown that effluent limits are not needed to ensure full compliance with the Groundwater Limitations and State Board Resolution No. 68-16. The proposed effluent limitations for salinity constituents are structured as follows:

1. The interim effluent salinity limitations, which are effective upon adoption of this Order, are intended only to ensure that the salinity of the treated effluent does not increase above current levels.
2. The final effluent salinity limitations, which become effective on 30 June 2008, require that the Discharger significantly reduce TDS, sodium, and chloride concentrations to ensure that reclamation will not cause unreasonable degradation of groundwater quality.

Interim Effluent Salinity Limitations: The interim effluent limitations for total dissolved solids and chloride were established based on analytical results for 29 effluent samples obtained between 23 January and 5 April 2006. The samples were analyzed for TDS and chloride only. Because the data exhibited significant temporal variability during that period, it is not practical to impose meaningful effluent limitations based on a 30-day average and/or a monthly maximum concentration. Therefore, interim effluent limitations were established for the flow-weighted mean concentration using the available data. A flow-weighted mean is appropriate because it allows for temporal variability (which the Discharger may not be able to readily control) while ensuring that the variability does not cause excess overall salinity loading rates to the reclamation area.

For TDS, the arithmetic mean of the 29-sample data set was rounded up to the nearest 100 mg/L to establish the limit for the 30-day flow weighted average concentration. For chloride, the arithmetic mean of the 29-sample data set was rounded up to the nearest 10 mg/L to establish the limit for the 30-day flow weighted average concentration. Because sodium was not routinely analyzed, the effluent limitation for sodium was established based on the results for a single effluent sample. However, the corresponding chloride result for that sample was similar to the average chloride concentration of the other 29 samples, so the single sodium result was assumed to be representative of the effluent. The single sodium result was also rounded up to the nearest 10 mg/L to establish the limit for the 30-day flow weighted average concentration.

Final Effluent Salinity Limitations: Reclaimed water will be approximately 44 percent of the total water supply for the golf course, and the remainder will be supplied from Cache Creek. Therefore, the salinity of the reclaimed water will be diluted, and it is reasonable for the final effluent salinity limitations to consider the effects of dilution. However, the true extent of the dilution is not known because the RWD did not provide sufficient salinity monitoring data for the Cache Creek water supply, so it is not possible to determine protective limits based on effluent quality alone. Therefore, the final salinity effluent limitations were established for the flow-weighted mean concentration of the blended irrigation water (reclaimed water plus Cache Creek water) as follows.

For TDS, a 330 mg/L domestic use allowance was added to the highest reported TDS result for the casino water supply (320 mg/L) to establish the limit for the 30-day flow weighted average

concentration of 650 mg/L. Based on the limited data available, the TDS concentration in groundwater underlying the golf course is no lower than 600 mg/L on average, so this limit should be protective. For chloride and sodium, the applicable water quality limits for protection of the beneficial uses of groundwater were assigned as limits for the 30-day flow weighted average concentration.

If the results of the *Background Groundwater Quality Report*, or any subsequent technical or monitoring report, show that the discharge of reclaimed water has caused, or is likely to cause, exceedance of any applicable water quality limit outside the boundary of trust land, Provision G.2 requires that Discharger submit an *Antidegradation Policy Compliance Report* at the request of the Executive Officer. The *Antidegradation Policy Compliance Report* must propose a detailed plan and schedule for achieving full compliance with the Antidegradation Policy.

The effluent limitations for turbidity and total coliform organisms are consistent with the Title 22 regulations for disinfected tertiary effluent recycled for use at golf courses.

Other Discharge Specifications

Most of the Discharge Prohibitions and Discharge Specifications are identical, or at least similar to, those prescribed for similar Publicly Owned Treatment Works (POTWs). However, because of the Discharger's special status as a Native American tribe operating a WWTF on land held in trust for the tribe, prohibitions and specifications that are typically included in WDRs to regulate the design, operation, and maintenance of the WWTF are not applicable to the Discharger. Therefore, the Prohibitions and Specifications of this Order are generally limited to performance standards that must be met outside of tribal lands (i.e., on the fee portions of the golf course and waters of the State outside of trust land).

Monitoring Requirements

Section 13267 of the CWC authorizes the Regional Water Board to require monitoring and technical reports as necessary to investigate the impact of a waste discharge on waters of the state. The proposed Order requires monitoring of tertiary effluent, the reclaimed water storage lake on the golf course, golf course reclamation areas, the golf course's fresh water supply, and groundwater. In order to adequately characterize its wastewater effluent, the Discharger is required to monitor for settleable solids, BOD, coliform, TDS, nitrogen, sodium, and chloride. Monitoring of additional minerals is required on an annual basis. To ensure that the reclaimed water storage ponds do not create nuisance conditions, the Discharger is required to monitor freeboard available and dissolved oxygen content weekly.

Title 27 regulations pertaining to groundwater monitoring and the detection and characterization of waste constituents in groundwater have been successfully implemented for several years. No regulation currently specifies similar criteria for discharges of non-designated waste to land. However, because of the character of the reclaimed water and the shallow depth to groundwater, it is appropriate that the Title 27 groundwater monitoring and evaluation procedures be applied to this discharge.

The Discharger must monitor groundwater for constituents present in the discharge and capable of reaching groundwater and violating groundwater limitations. The Discharger's existing network of

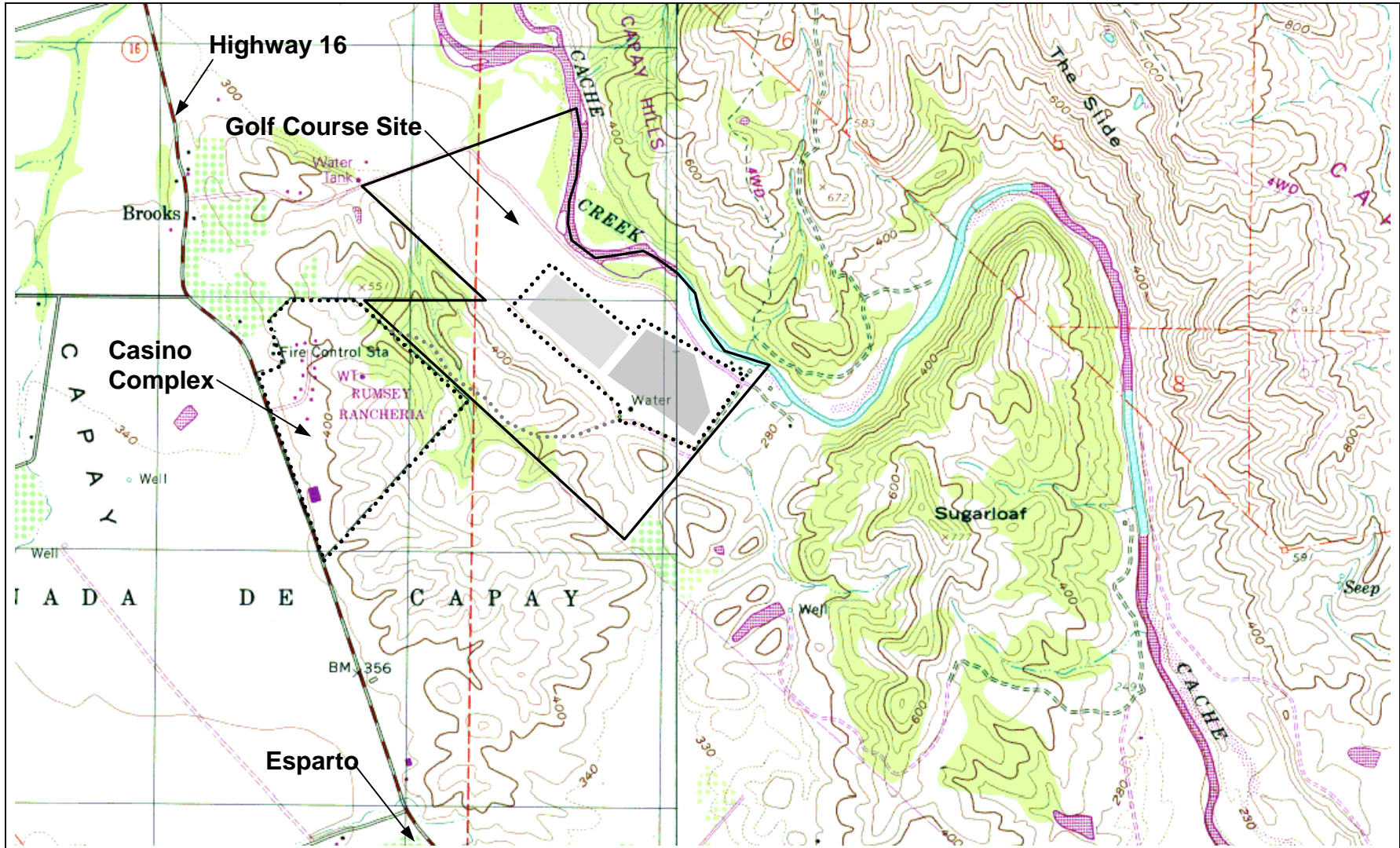
groundwater monitoring wells is not adequate to fully characterize background water quality and potential groundwater impacts beyond the boundaries of trust land for the wastewater treatment facility and reclamation areas.

Reopener

The conditions of discharge in the proposed Order were developed based on currently available technical information and applicable water quality laws, regulations, policies, and plans, and are intended to assure conformance with them. However, information is presently insufficient to develop final groundwater limitations, so the proposed Order contains interim limitations. Additional information must be developed and documented by the Discharger as required by the Monitoring and Reporting Program of the proposed Order. As this additional information is obtained, decisions will be made concerning the best means of assuring the highest water quality possible and that could involve substantial cost. It may be appropriate to reopen the Order if applicable laws and regulations change, but the mere possibility that such laws and regulations may change is not sufficient basis for reopening the Order. The CWC requires that waste discharge requirements implement all applicable requirements.

ALO:11/06/06

ATTACHMENT A



Drawing Reference: USGS 7.5 minute quad,
Brooks, CA

LEGEND

- Trust Land Boundary
- Trust Land Roadway
- Fee Land Boundary
- Former Spray Fields

All locations approximate

VICINITY MAP

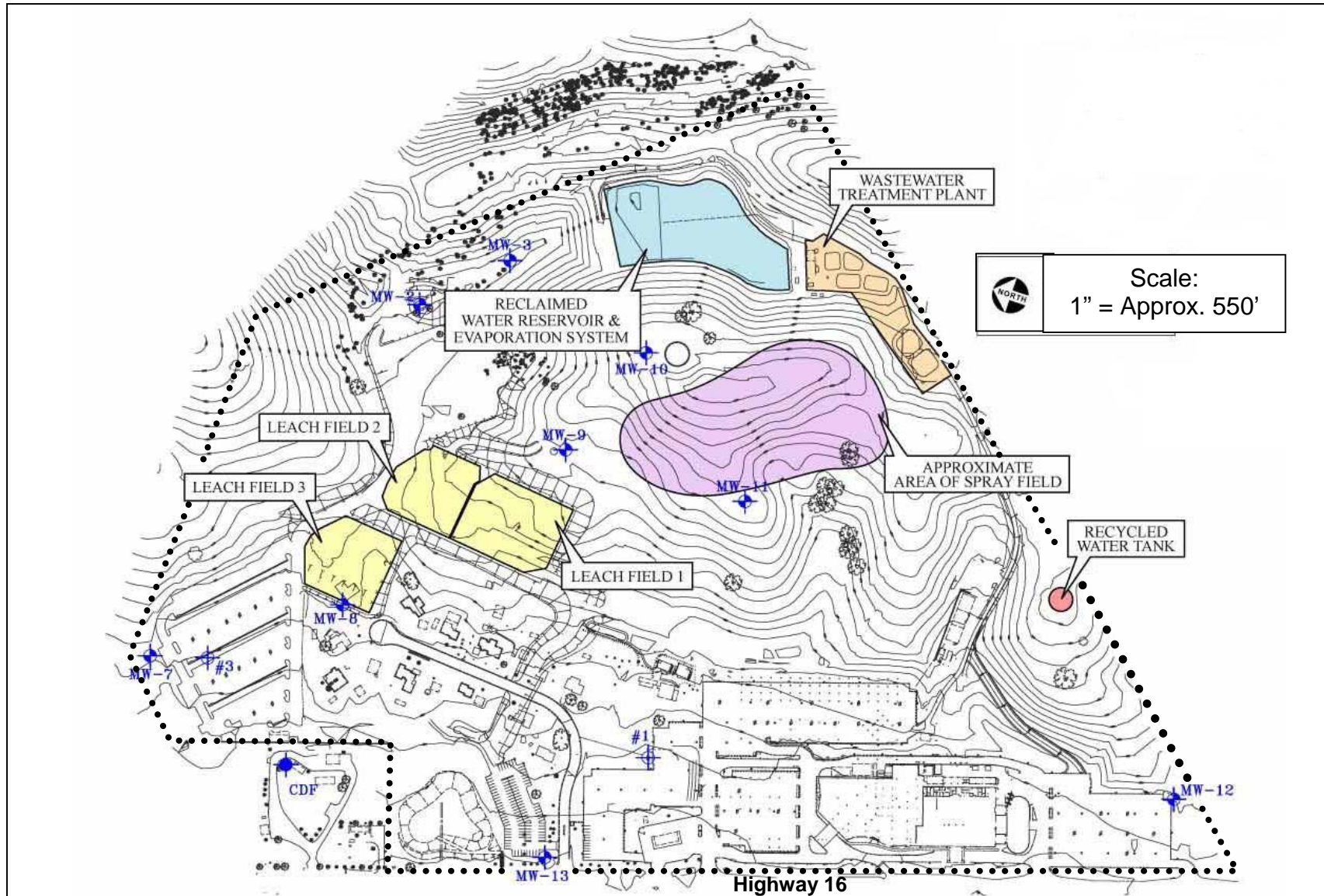
THE RUMSEY BAND OF WINTUN INDIANS
CACHE CREEK GOLF CLUB
WATER RECLAMATION PROJECT
YOLO COUNTY

ORDER NO. R5-2006-0121



Scale:
1" = Approx. 2,300'

ATTACHMENT B



Drawing Reference: Cache Creek Water and Wastewater Monitoring Plan, Analytical Environmental Services, 2002

LEGEND

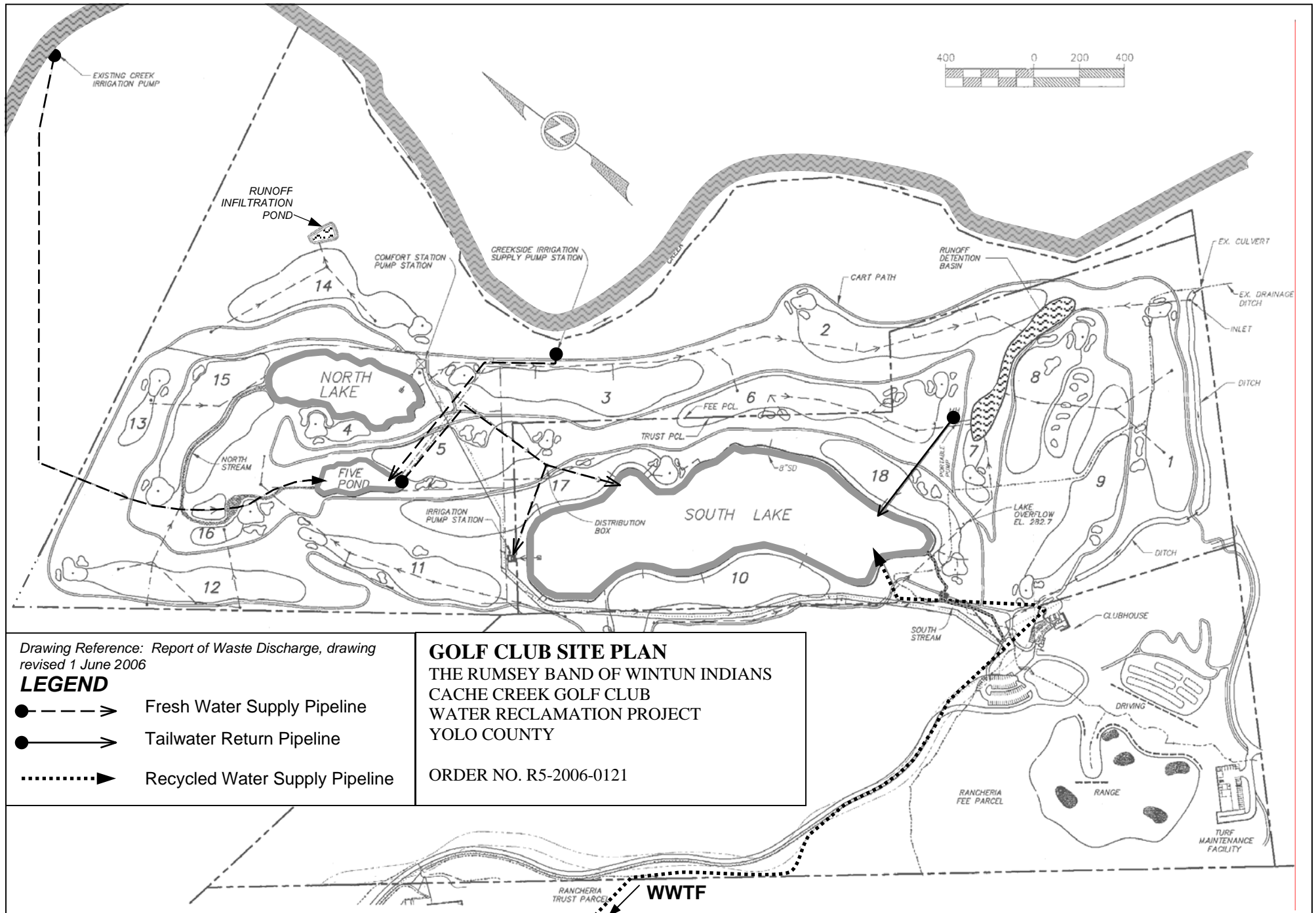
- Trust Land Boundary
- ★ Monitoring Well
- ★ Supply Well

All locations approximate

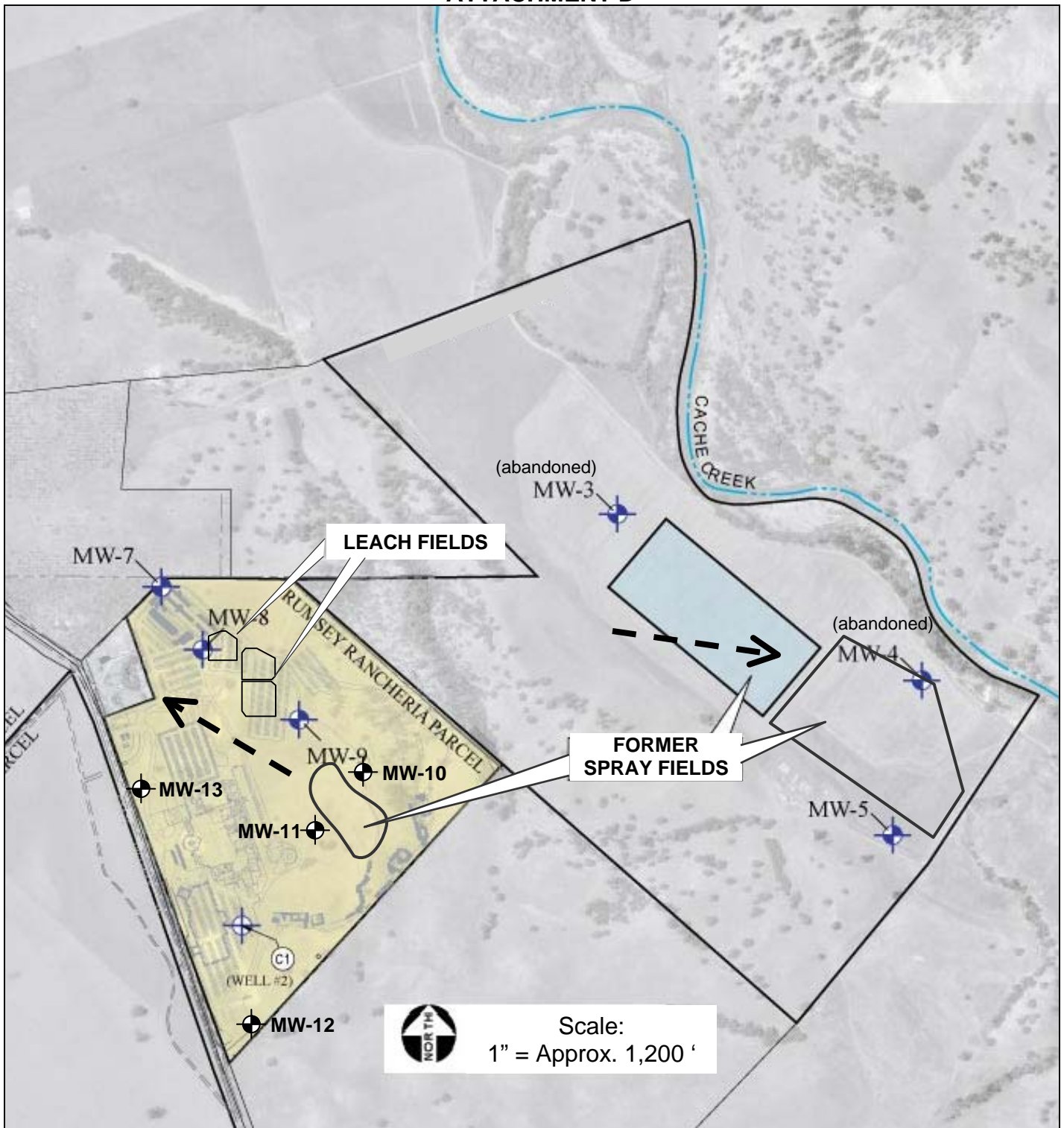
CACHE CREEK RESORT AND WWTF SITE PLAN
THE RUMSEY BAND OF WINTUN INDIANS
CACHE CREEK GOLF CLUB
WATER RECLAMATION PROJECT
YOLO COUNTY

ORDER NO. R5-2006-0121

ATTACHMENT C





ATTACHMENT D



Drawing Reference: Report of Waste Discharge

LEGEND

-  MW-12 Monitoring Well
-  General Groundwater Flow Direction

All locations approximate

MONITORING WELL MAP

THE RUMSEY BAND OF WINTUN INDIANS
CACHE CREEK GOLF CLUB
WATER RECLAMATION PROJECT
YOLO COUNTY

ORDER NO. R5-2006-0121

ATTACHMENT E

ORDER NO. R5-2006-0121

REQUIREMENTS FOR MONITORING WELL INSTALLATION WORKPLANS AND MONITORING WELL INSTALLATION REPORTS

THE RUMSEY BAND OF WINTUN INDIANS

CACHE CREEK GOLF CLUB WATER RECLAMATION PROJECT

YOLO COUNTY

Prior to installation of groundwater monitoring wells, the Discharger shall submit a workplan containing, at a minimum, the information listed in Section 1 below. Wells may be installed after staff approves the workplan. Upon installation of the monitoring wells, the Discharger shall submit a well installation report that includes the information contained in Section 2 below. All workplans and reports must be prepared under the direction of, and signed by, a registered geologist or civil engineer licensed by the State of California.

SECTION 1 - Monitoring Well Installation Workplan and Groundwater Sampling and Analysis Plan

The monitoring well installation workplan shall contain the following minimum information:

A. General Information:

- Purpose of the well installation project
- Brief description of local geologic and hydrogeologic conditions
- Proposed monitoring well locations and rationale for well locations
- Topographic map showing facility location, roads, and surface water bodies
- Large scaled site map showing all existing on-site wells, proposed wells, surface drainage courses, surface water bodies, buildings, waste handling facilities, utilities, and major physical and man-made features

B. Drilling Details:

- On-site supervision of drilling and well installation activities
- Description of drilling equipment and techniques
- Equipment decontamination procedures
- Soil sampling intervals (if appropriate) and logging methods

C. Monitoring Well Design (in narrative and/or graphic form):

- Diagram of proposed well construction details
 - Borehole diameter
 - Casing and screen material, diameter, and centralizer spacing (if needed)
 - Type of well caps (bottom cap either screw on or secured with stainless steel screws)
 - Anticipated depth of well, length of well casing, and length and position of perforated interval
 - Thickness, position and composition of surface seal, sanitary seal, and sand pack
 - Anticipated screen slot size and filter pack

D. Well Development (not to be performed until at least 48 hours after sanitary seal placement):

- Method of development to be used (i.e., surge, bail, pump, etc.)
- Parameters to be monitored during development and record keeping technique

Method of determining when development is complete
Disposal of development water

- E. Well Survey (precision of vertical survey data shall be at least 0.01 foot):
Identify the Licensed Land Surveyor or Civil Engineer that will perform the survey
Datum for survey measurements
List well features to be surveyed (i.e. top of casing, horizontal and vertical coordinates, etc.)

- F. Schedule for Completion of Work

G. **Appendix: Groundwater Sampling and Analysis Plan (SAP)**

The Groundwater SAP shall be included as an appendix to the workplan, and shall be utilized as a guidance document that is referred to by individuals responsible for conducting groundwater monitoring and sampling activities.

Provide a detailed written description of standard operating procedures for the following:

- Equipment to be used during sampling
- Equipment decontamination procedures
- Water level measurement procedures
- Well purging (include a discussion of procedures to follow if three casing volumes cannot be purged)
- Monitoring and record keeping during water level measurement and well purging (include copies of record keeping logs to be used)
- Purge water disposal
- Analytical methods and required reporting limits
- Sample containers and preservatives
- Sampling
 - General sampling techniques
 - Record keeping during sampling (include copies of record keeping logs to be used)
 - QA/QC samples
- Chain of Custody
- Sample handling and transport

SECTION 2 - Monitoring Well Installation Report

The monitoring well installation report must provide the information listed below. In addition, the report must also clearly identify, describe, and justify any deviations from the approved workplan.

A. General Information:

Purpose of the well installation project

Brief description of local geologic and hydrogeologic conditions encountered during installation of the wells

Number of monitoring wells installed and copies of County Well Construction Permits

Topographic map showing facility location, roads, surface water bodies

Scaled site map showing all previously existing wells, newly installed wells, surface water bodies, buildings, waste handling facilities, utilities, and other major physical and man-made features.

B. Drilling Details (in narrative and/or graphic form):

On-site supervision of drilling and well installation activities

Drilling contractor and driller's name

Description of drilling equipment and techniques

Equipment decontamination procedures

Soil sampling intervals and logging methods

Well boring log

- Well boring number and date drilled
- Borehole diameter and total depth
- Total depth of open hole (same as total depth drilled if no caving or back-grouting occurs)
- Depth to first encountered groundwater and stabilized groundwater depth
- Detailed description of soils encountered, using the Unified Soil Classification System

C. Well Construction Details (in narrative and/or graphic form):

Well construction diagram, including:

- Monitoring well number and date constructed
- Casing and screen material, diameter, and centralizer spacing (if needed)
- Length of well casing, and length and position of perforated interval
- Thickness, position and composition of surface seal, sanitary seal, and sand pack
- Type of well caps (bottom cap either screw on or secured with stainless steel screws)

E. Well Development:

Date(s) and method of development

How well development completion was determined

Volume of water purged from well and method of development water disposal

Field notes from well development should be included in report

F. Well Survey (survey the top rim of the well casing with the cap removed):

Identify the coordinate system and datum for survey measurements

Describe the measuring points (i.e. ground surface, top of casing, etc.)

Present the well survey report data in a table

Include the Registered Engineer or Licensed Surveyor's report and field notes in appendix